Emmylou Harris & Daniel Lanois · Interview With Greg Mackie · SSL 9000 Review

U.S. $4.95 CANADA $5.95 FEBRUARY 1996

MIX®

PROFESSIONAL RECORDING · SOUND AND MUSIC PRODUCTION

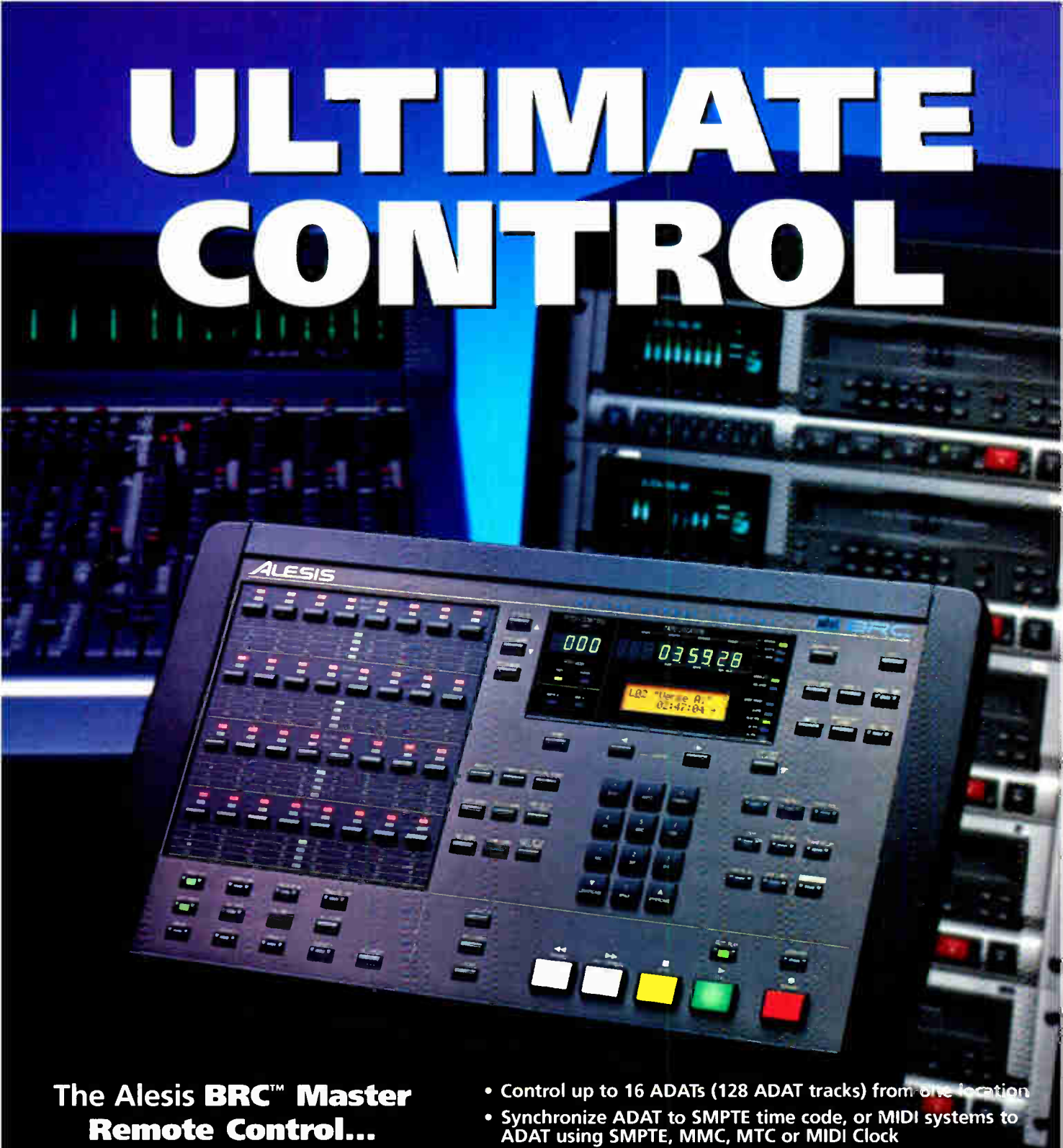
A Buyer's Guide To Analog 8-Bus Consoles

Sound On Broadway: The New State-of-the-Art

Engineers Talk About Sample-Based Recording

BRUCE SPRINGSTEEN'S SOLO TOUR

ULTIMATE CONTROL



The Alesis BRC™ Master Remote Control...
the ultimate power tool for the ADAT® Digital Recording System.

adat BRC™
MASTER REMOTE CONTROL

- Control up to 16 ADATs (128 ADAT tracks) from one location
- Synchronize ADAT to SMPTE time code, or MIDI systems to ADAT using SMPTE, MMC, MTC or MIDI Clock
- Create digitally-assembled productions using bars/beats or second/frame/sample display references
- Store 460 locate points, 420 with user-definable names
- Copy and paste digital audio between ADATs with single-sampl accuracy
- Auto Punch In/Out, Pre/Post-Roll, Rehearse Mode, Track Delay, Digital Crossfading, Auto Loops, Session Data Backup and more
- Completely compatible with the new Alesis ADAT-XT™

For more information about the BRC, see your Authorized Alesis Dealer or call 310-841-2272.
® Alesis and ADAT are registered trademarks; BRC and ADAT-XT are trademarks of Alesis Corporation.

Alesis Corporation 3630 Holdrege Avenue Los Angeles CA 90016 310-841-2272 alecorp@alesis1.usa.com

ALESIS

For some studio owners, only one console is good enough.

"I have recorded over 400 albums in the last 30 years and in that time I have worked on virtually every console imaginable. To me, sound quality is everything. Great low end impact, effortless open top end and exceptional overall clarity are not qualities I normally associate with modern consoles. I am not easily impressed, but to my amazement, the SL 9000 exhibits all these attributes. The second I put up a multitrack tape I was familiar with, I was knocked out."

"The SL 9000 just sounds great, period."

Allen Sides, Ocean Way Recording, Hollywood.

SL 9000 J SERIES CONSOLE

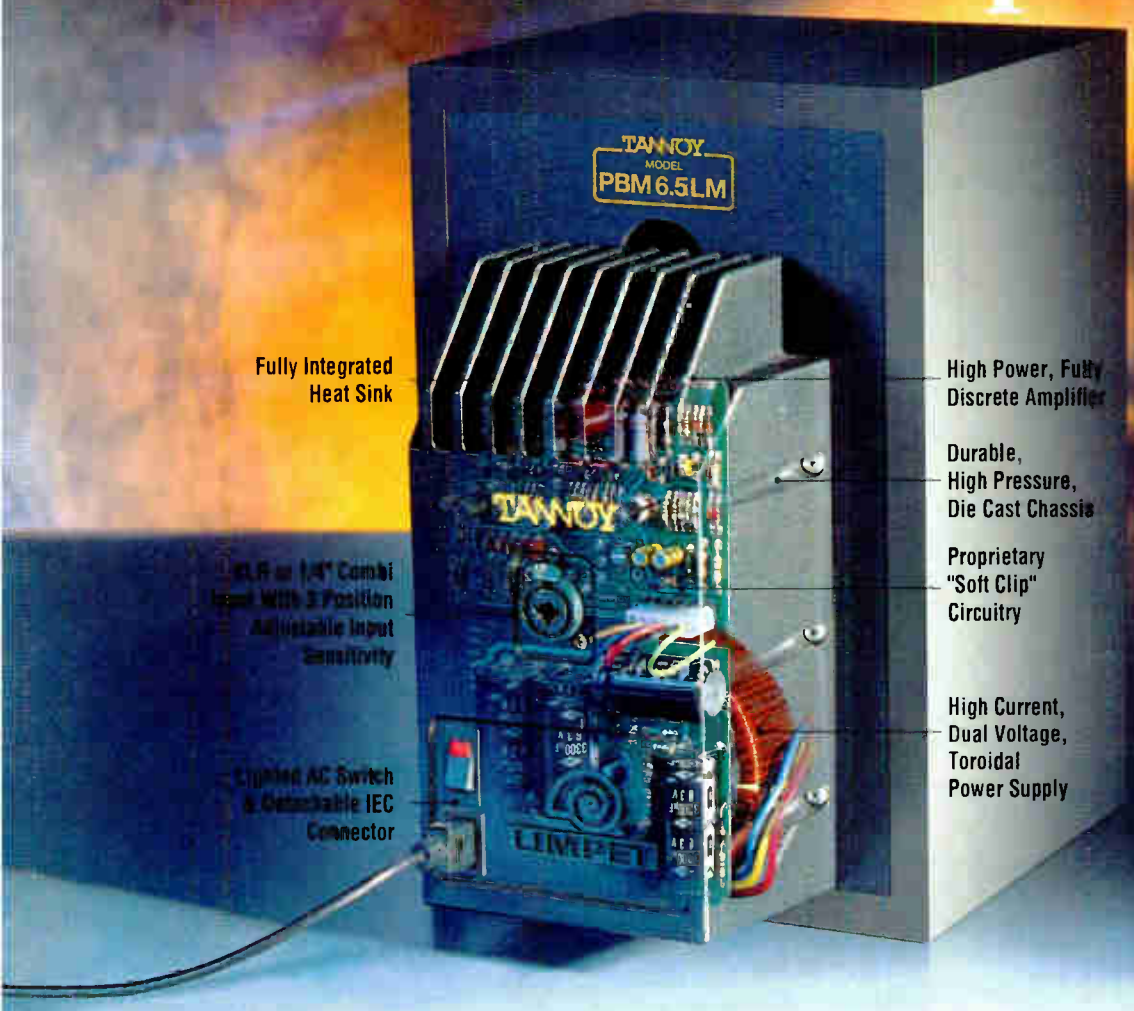
THE ULTIMATE ANALOGUE

SL 9000

Solid State Logic

International Headquarters: Begbroke, Oxford OX5 1RU England · Tel. (01865) 842300 Fax: (01865) 842118
Paris (1) 34 60 46 66 · Milan (2) 262 24956 · Tokyo (3) 54 74 11 44 · New York (212) 315 1111 · Los Angeles (213) 463 4444

They Call Him "Mr." Limpet®



■ Every once in a while a product comes along which not only meets the ever increasing demands of the market, but one whose smooth commercial styling, ergonomics, durability and outstanding performance demands respect. Introducing MR. LIMPET. ■ The LIMPET is a unique, compact design that combines a very high current toroidal power supply, fully discrete amplification stages, and ultra wide (10 Hz to 80 kHz) bandwidth capabilities in a very affordable system. ■ Built using a one piece high pressure die-cast metal housing, the LIMPET is not only very rugged electrically and mechanically, its internal construction takes advantage of the industry s most advanced assembly techniques. ■ The LIMPET amplification system can be used with a wide range of TANNOY professional reference monitor systems, and provides the user with a number of improvements in both the performance of the loudspeaker system, and its flexibility. ■ Each single channel LIMPET system delivers an enhanced stereo image because the channels are fully separated - no power supply sagging due to inter-channel coupling, no crosstalk, no interference. Almost any kind of input level and connector can be used, since the LIMPET offers a balanced or unbalanced "combi" connector that can utilize either 1/4" or 3 pin jacks. ■ The ultra-low noise input section can accommodate either 0.775, 1.0, or 1.5 volt drive levels with no performance sacrifice. ■ The LIMPET's universal power supply, equipped with an industry standard IEC connector easily deals with almost any voltage, making the LIMPET a true global traveler. Finally, you can take your monitors wherever your work takes you, and not have to worry about cumbersome and troublesome adaptors, power converters, or strange electrical systems. ■ In addition, the unique and proprietary soft-clip circuitry and the significant reserves in the power supply ensure that no damage will occur to the drive units while providing the headroom needed for even the most demanding requirements. ■ The LIMPET is ideal for professional recording, broadcast/post production facilities, remote and live recording reinforcement applications, and finally gives the private/home recording studio truly reference quality performance unequaled at twice the price. ■ Instead of settling for the ordinary, get a LIMPET and get a real grip on your reference monitor performance.

TANNOY
HEAR BELIEVE

TANNOY/TGI NORTH AMERICA INC. • 300 GAGE AVE., UNIT 1, • KITCHENER, ONTARIO, CANADA • N2M 2C8 • (519) 745-1158 • FAX (519) 745-2364

STUDER: THE BEST INVESTMENT

IN YOUR STUDIO'S FUTURE.

IT'S DECISION TIME in studios around the world. The question: what's the best multitrack platform to suit your needs today, take you reliably into the future, *and* protect your investment? There are many choices... but in many applications, there's simply no substitute for multitrack tape.

Tape works – artistically and financially. It's the most cost-effective medium for multitrack music production, and it's easy to work with. Tape isn't going to become obsolete, and neither is your tape machine – analog or digital.

Good reason, then, to come to Studer. We've been making tape machines from the very beginning, and whether you need analog or digital multitrack – or both – we have the highest-return solution.

The new Studer D827 24/48-track DASH recorder (right) sets new standards in digital audio recording – just as its

partner, the A827 (left), offers new levels of quality for analog recording. The Studer D827 digital multitrack offers full field upgradability from 24 to 48-track. With 18-bit converter technology and advanced noise-shaping techniques for the very highest audio quality – in the Studer tradition. There's a unique 24-bit Studer-format recording option – while retaining full compatibility with existing DASH machines. Both analog and digital 827-series machines are always on cue when you need them, thanks to a fast, responsive transport and built-in locator. Enhanced servo control and dynamic tape-handling ensure your masters get the respect they deserve.

With the extended leasing options now available, Studer multitrack recorders are surprisingly affordable. Analog or digital, the Studer 827 series offers the ultimate in sound quality – and the ultimate return on your investment.

Hear Today – Here Tomorrow.

STUDER

PROFESSIONAL AUDIO EQUIPMENT

A Harman International Company

Los Angeles: 818/703-1100. Nashville: 615/391-3399. New York: 212/620-6734. Toronto: 416/510-1347
London: +44 (0) 81 953 3533 Worldwide Distribution: Studer, Regensdorf, Switzerland +41 (0) 1 870 75 11.

MIX®

PROFESSIONAL RECORDING · SOUND AND MUSIC PRODUCTION

FEBRUARY 1996, VOLUME 20, NUMBER 2

AUDIO

PHOTO: CAROL ROSEGG/JOAN MARCUS

PAGE 44

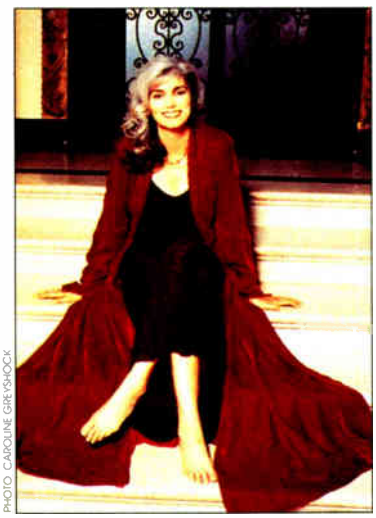
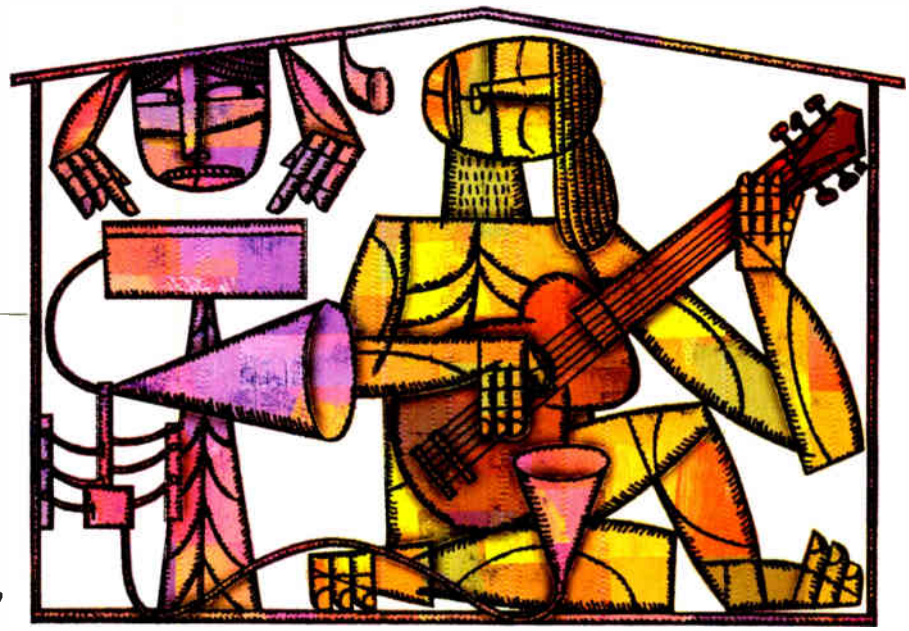


PHOTO: CAROLINE GREYSHOCK

PAGE 178



PAGE 30

LIVE SOUND

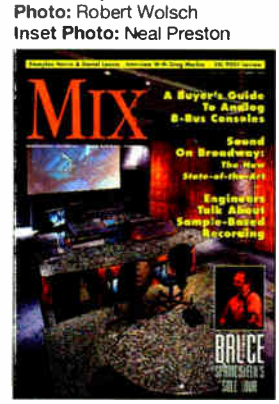
PAGE 84

PRODUCTS

POST-PRODUCTION

DEPARTMENTS

Cover: Studio C at Photomag, New York City, houses a 96-input AMS Logic 2 digital console with an integral 24-output AudioFile Spectra. A three-way KRK 15A3 system provides LCR monitoring, with KRK 6000s for the surrounds, powered by Bryston amps. The studio supports matrixed and discrete multichannel formats. Design was by Jim Maher in conjunction with K.C. Green and mix engineer Peter Holcomb. Construction by the Rafferty brothers.
Photo: Robert Wolsch
Inset Photo: Neal Preston



THE COMPRESSOR LIMITER EXPANDER/GATE

The name that defines great compression!

A/B the sound with and without sidechain processing. No patching required.

OverEasy®-- the choice of top professionals for soft-knee compression.

12-segment gain reduction meter allows precision monitoring of compression.

Tells you when the zero-attack PeakStopPlus™ limiter is doing its thing.

Link both channels the best way with True RMS Power Summing— a very musical way to achieve stereo compression.

Flexible expander/gate works over a 70 dB range.

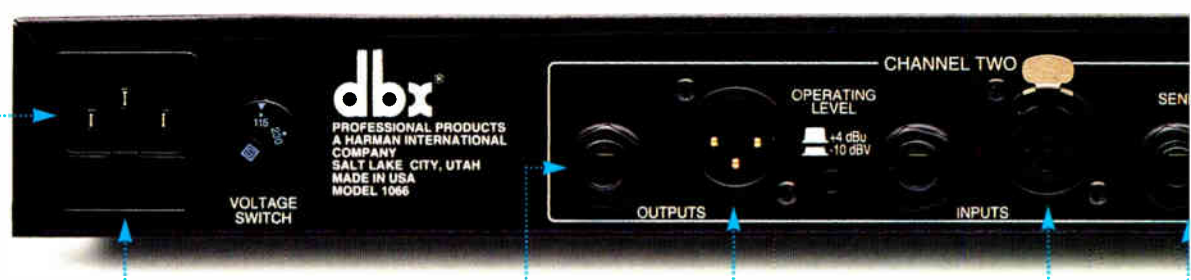
Monitor sidechain processing when setting up the unit.

Prevents low-frequency energy from punching holes in the sound.

Get that classic dbx sound by selecting program dependent attack and release times. or (see #18)

Monitor either input or output signals.

The illuminated switches are not only cool, but are easily seen in light or dark.



Internal power supply with easily replaceable power cord.

Easily accessible fuse — you'll probably never need to find out how easy.

Connect the unit hassle free using either unbalanced or balanced 1/4" TRS or balanced XLR connectors.

Ensure signal path integrity with gold plated locking Neutrik® XLR connectors.

Add processing to detector path for frequency-conscious compression/gating/speci effects.

THAT WILL TURN THE WORLD ON ITS EAR.

AGAIN.

Over/Under LED's let you know at a glance if you're expanding/gating.

3-segment OverEasy® indicator lets you know when that classic dbx compression starts happenin'.

Fully adjustable attack and release controls offer maximum flexibility. or (see #7)

Peak-reading meter allows easy setting of optimum input and output levels.

Vary the Ratio to select anywhere from gentle downward expansion to gating.

Detented controls and soft-touch knobs assure precision adjustments.

Adjusts from mild compression to ∞:1 limiting.

Add make-up gain or match levels over a 40 dB range.

Newly developed PeakStopPlus™ circuit intelligently tames signal peaks.

Add optional custom dbx output transformers manufactured by Jensen®.

Heavy-duty steel chassis will take years of road use and abuse.

Servo-balanced outputs drive up to +22dBu

Convert semi-pro -10dBV signals to the dbx 1066's professional +4dBu internal leve .

Precision balanced inputs reject hum and noise in tough audio environments.

Separate sidechain send and return jacks —no special "insert Y-cables" required.

You've seen and heard dbx signal processors for as long as you've been involved with audio. After all, our boxes are in daily use all over the world, with major touring companies, world class recording facilities, radio and television broadcast facilities and anywhere else audio professionals ply their trade.

Now, after over twenty years of pleasing the most finely tuned ears in the business, dbx has done it again with the new 1066. The dbx1066 will, of course, be the standard against which all compressor/limiter/gates are judged. State of the technology VCA's, meticulous component selection, and scrupulous testing procedures are just a few reasons the new dbx1066 is the latest in a long line of pedigreed signal processors.

So head on down to your local dbx dealer and audition this box. We're sure you'll see why the dbx1066 is destined to turn the world on its ear.

For more information contact us at:
(801) 568-7660
Fax (801) 568-7662
dbx 8760 S. Sandy Parkway, Sandy, UT 84070 USA or if you prefer surfing to snailing send e-mail to customer@dbxpro.com

dbx®

H A Harman International Company

USE READER SERVICE CARD FOR MORE INFO

FROM THE EDITOR

THE PROJECT STUDIO: WHAT'S NEXT?

Well-to-do artists and producers have always had private access to technology, whether it be Hollywood moguls building screening rooms in their mansions or recording stars owning commercial studios. Les Paul and Rudy Van Gelder forged the concept of the pro-quality home studio in the 1950s. During the '60s and '70s, the idea caught on with rock artists such as the Beach Boys, Pete Townshend, Frank Zappa, the Grateful Dead and Peter Gabriel.

Over the past decade, as MIDI production proliferated and low-cost/high-performance digital recorders became affordable, the notion of the project studio was formed. Tascam first coined the phrase "project studio" in the late 1980s to describe a revenue-generating, private-use facility. Soon, "project studio" caught on as a convenient way of defining (and marketing) this new breed of audio production facility.

And after a somewhat tumultuous adolescence (mainly due to run-ins with zoning laws and conflicts with commercial facilities), the project studio has matured. Project studios are now home to every conceivable type of audio production, ranging from film/video scoring, to multimedia and record projects, to dialog editing, audio restoration and desktop mastering/premastering.

Where sprocketed media and 2-inch tape once ruled as the universally accepted standards of the audio industry, modular digital multitrack tapes, removable hard disks and high-density rewritable media have become equal partners in the production process. Musicians track on their MIDI systems or MDMs, then complete the project at commercial studios; MDMs and disk-based systems are frequently brought to film re-recording stages to supplement traditional dubbers; sound editors take a disk of dialog tracks home for the evening and pick up some freelance money, while relieving the production crunch. Today, the only rule is that there are no rules: Everybody is developing their own work style, based on available technology.

The project studio revolution began with MIDI and picked up steam with other advances, such as MDMs and low-cost 8-bus consoles. Programs such as OSC's DECK and Digidesign's Session software can now transform ordinary computers into 24-track production powerhouses with digital recording, mixing, editing and DSP. And at last month's NAMM show, Roland unveiled its VS-880, a stand-alone 8-track digital recorder/editor/mixer with removable drives—priced at an unbelieveable $2,895. What's next is anybody's guess, but at the rate things are moving, the pocket cellular 72-track workstation should be here any day now.

This month, we focus on the project studio. CompuServe MIDI forum sysop Dominick Fontana has assembled an exhaustive buyer's guide to affordable 8-bus consoles; Chris Patton talks to producers about sample-based production techniques; Evan Ambinder visits VideoHelper in New York City; and Dan Daley looks at several personal-use rooms that have made the transition and become commercial facilities.

Hang on. It's gonna be a wild ride.

George Petersen

BPA INTERNATIONAL

SPARS

Mix magazine is published at 6400 Hollis St. #12, Emeryville, CA 94608 and is ©1996 by Cardinal Business Media, Inc. *Mix* (ISSN 0164-9957) is published monthly. Subscriptions are available for $46.00 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 41525, Nashville, TN 37204 or call (800) 843-4086. Outside U.S., call (615) 377-3322. POSTMASTER: Send address changes to *Mix* magazine, PO Box 41525, 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. Editeur Responsable (Belgique), Christian Desmet, Vuurgatstraat 92, 3090 Overijse, Belgique.

S T A F F

NATIONAL EDITORIAL, ADVERTISING and **BUSINESS OFFICES**, 6400 Hollis St. #12, Emeryville, CA 94608. (510) 653-3307, IMC 736, FAX: (510) 653-5142. e-mail: 74673.3672@compuserve.com **EAST COAST ADVERTISING OFFICES**, 298 5th Ave., 7th Floor, New York, NY 10001, (212) 563-5301. **SOUTHERN CALIFORNIA ADVERTISING OFFICES**, 12424 Wilshire Blvd., Ste. 1125, Los Angeles, CA 90025, (310) 207-8222, FAX: (310) 207-4082. **FACILITIES SALES**, (510) 653-3307. **CLASSIFIEDS ADVERTISING**, (800) 544-5530. **MIX BOOKSHELF**, (800) 233-9604. **BACK ISSUES**, (800) 839-5977. **CIRCULATION INQUIRIES**, PO Box 41525, Nashville, TN 37204. (800) 843-4086, (615) 370-5643.

Founded in 1977 by
David Schwartz and Penny Riker Jacob

Born Digital. Bred For Gold.

Ampex 489 ADAT, 488 Audio Hi8 and 467 R-DAT. Highest consistency, lowest error rates. No wonder more studios go gold on Ampex than on all other tapes combined.

You're on the cutting edge. You record in the newest generation studio. You need tapes that are designed specifically for digital audio applications.

So we consulted with the most demanding artists and engineers in digital recording and spent months in development back at the lab. The results are Ampex 489 S-VHS, 488 Audio Hi8, and 467 R-DAT, designed specifically for digital mastering.

They are simply the finest mastering tapes you can buy. In fact, more artists, engineers and studios go gold on Ampex than on all other tapes combined.

Thanks to our unique dual coating technology, Ampex 489 and 488 feature low dropouts, high output, and the most consistent quality tape after tape. Plus, low abrasivity to ensure long headlife. Which is why Alesis, the creator of the ADAT format, recommends Ampex 489 ADAT.

Ampex 489 is now available in our new 60 minute extended play configuration – for use on ADAT System 4 recorders or newer. Ampex 488 Audio Hi8, in 30, 60, and 113 minute configurations.

And for two track mastering tape, try Ampex 467 R-DAT. They're all easy to find, thanks to the industry's largest distribution network. And they're backed with the service and support that has long been the industry standard.

For more information, or the name of your nearest distributor, just call us at **800 227-8443**. Ampex 489, 488 and 467 audio mastering tapes. Born digital. Bred for gold.

AMPEX

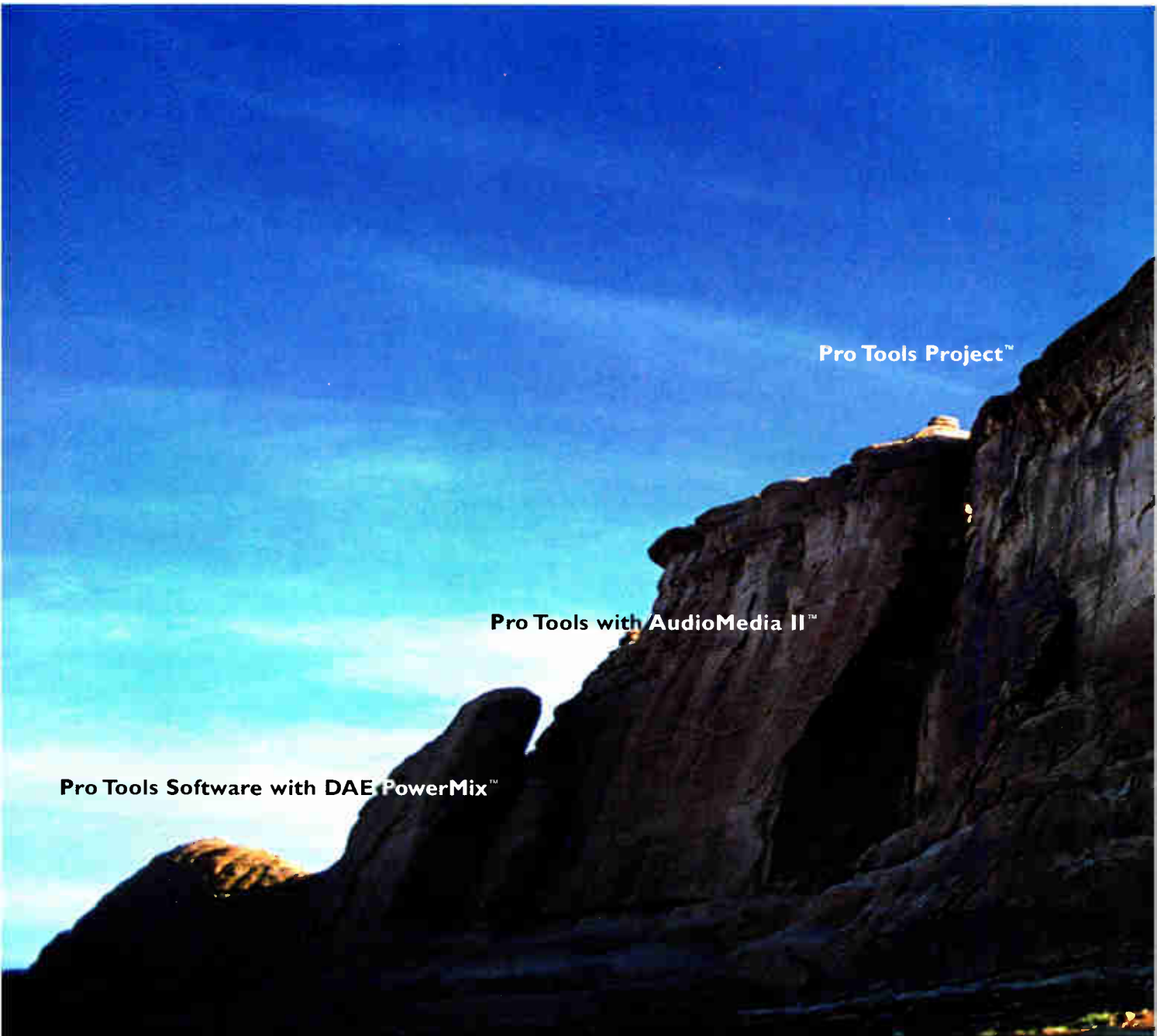
Ampex Recording Media Corporation, 401 Broadway, M.S. 22-02, Redwood City, California 94063

USE READER SERVICE CARD FOR MORE INFO

PRO TOOLS

Introducing the coolest upgrade path in all of digital audio.

Here's news for every musician, editor, producer, and engineer: The industry standard digital audio workstation—Pro Tools from Digidesign—now comes in a range of products tailored to your needs and budget. Now you can start with the all-new Pro Tools with DAE PowerMix™ for just $795. As your needs grow, you can climb all the way to the world's best-selling

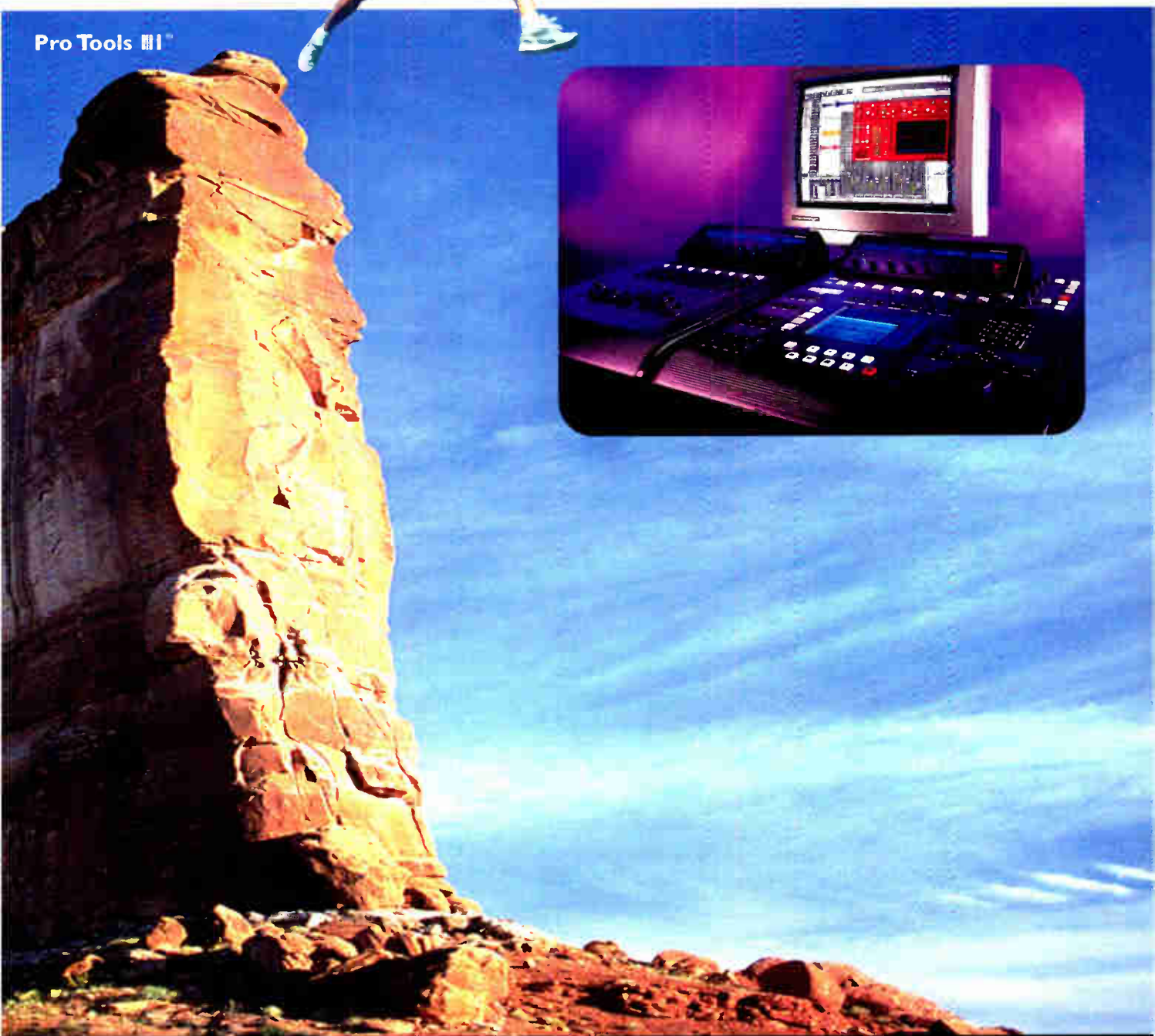


New. An amazing value that turns your Power Macintosh or Mac-OS clone into a multitrack digital workstation with no additional hardware. Pro Tools interface. Random access, non-destructive editing. Up to 16 tracks of playback. Automated digital mixing with 2 bands of EQ per track.

This audio card adds 2 channels of high-quality analog and digital I/O, and comes with industry standard Sound Designer II software and entree to its family of DSP Plug-Ins.

New. Pro Tools software and Pro Tools Project Audio Card. Adds 8 tracks of simultaneous record/playback. Up to 8 channels of analog and digital I/O. Supports Sound Designer II and DSP Plug-Ins.

workstation. Pro Tools III, with mountains of record tracks, I/O, and real-time effects and mixing. Each step of the way, you'll learn and grow with Pro Tools software, share work between systems, and take an upgrade path that lets you build on the value of your investment. Audio professionals now have more choices and flexibility than ever before. And getting started couldn't be easier. To learn more about the clearest path to the best in digital audio, call **1-800-332-2137 x203**.



The ultimate workstation. TDM virtual digital mixing and processing environment accommodates a wide variety of real-time Plug-Ins. 16-48 tracks of record/playback. 8-64 channels of high-quality analog and digital I/O. New for '96: ProControl,™ an advanced tactile control surface with dedicated controls for mixing and editing, plus high-quality moving faders.

For audio professionals and musicians, as well as for more than 100 Digidesign Development Partners, Pro Tools is the industry standard. That's why more audio professionals use Pro Tools than all other digital audio workstations combined.

digidesign®
Avid Audio Division

AVID

CURRENT

MEDIAMUSE BUYS INTO POWER STATION STUDIOS

Mix has learned that 50 percent of Power Station Studios has been acquired by New York-based multimedia publisher and content developer MediaMuse, effective late-December 1995. MediaMuse and Power Station will jointly develop recording artists and other audio projects and use the studio as a base of operations, according to Power Station owner Tony Bongiovi, who will serve as producer for many of the projects. MediaMuse CEO and chairman Terrence M. Tierney will oversee the financial restructuring of the studio as a condition of the joint venture. MediaMuse was formed in 1995 as a privately funded holding company for entertainment projects, including two record labels and a print publication, *New Review of Records*. Both companies are privately held; no dollar figures were disclosed at press time.

Power Station is in the midst of a strategic Chapter 11 bankruptcy filing to protect its assets as it prosecutes a fiduciary civil lawsuit against main creditor Chemical Bank. (See "New York Metro," page 194, for more details.) Under the joint venture, Power Station has retained new legal counsel that will work in concert with MediaMuse's corporate lawyers. Tierney, an attorney whose entry into the entertainment industry came as legal counsel to the helicopter operator in the crash incident that killed guitarist Stevie Ray Vaughn, told *Mix* that a settlement of the litigation with Chemical Bank could be part of a court-approved restructuring that would allow Power Station to emerge from bankruptcy by the second quarter of 1996.

Bongiovi stressed that Power Station would remain a commercial, for-hire facility; however, he also asserted that this venture returns the studio to its core operation as a base for his productions and as a base for artist development under the MediaMuse corporate umbrella. The infusion of capital is expected to finance some near-term technology upgrades.

—Dan Daley

SSL AND MIX SPONSOR ENHANCED CD AND INTERNET SITE

Solid State Logic and *Mix* magazine are sponsoring *Prestige Studios of the World*, an Enhanced CD showcasing ten of the world's leading recording facilities. The CD, featuring Interactive QuickTime VR tours of the studios, can be played on any Macintosh or Windows-equipped PC with a CD-ROM drive; also included are interviews with leading artists, producers and engineers. Featured audio tracks recorded at the facilities can be played on any domestic CD player.

Users will be able to launch directly from the CD to an accompanying Web site, using the supplied CompuServe software. The site will feature regularly updated information about the studios, sponsors and products, and serve as a launch pad to other sites of interest. It will also play a key role in a game in which participants can win a day at one of the featured studios.

The *Prestige Studios* project was conceived by San Francisco-based 21st Century Group and produced by 21st Century Media. "Our aim is to bring some of the world's most famous recording studios and the people who work in them to your desktop, while demonstrating the power of interactive multimedia to the professional audio market," says Jim Baker, the project's producer and president of 21st Century Media.

The project is sponsored by Apple Computer, CompuServe, Data Translation, FWB, Disc Manufacturing Inc., Adobe, Macromedia, the KABA Group and Sound Ideas. Ten thousand copies of the CD will be given away with the April issue of *Mix*. The CD will also be available for the cost of postage and handling from Solid State Logic and 21st Century. The Web site can be reached at http://www.c21media.com/studios.

TEC AWARDS RETURN TO L.A. BILTMORE

The Twelfth Annual Technical Excellence and Creativity Awards will return to the prestigious Biltmore Hotel in Los Angeles, Saturday, November 9, 1996. The handsomely refurbished Biltmore has been the site of the West Coast TEC Awards on two occasions, and has hosted the Grammys and the ACE Awards.

For more information about tickets or sponsorships for this year's TEC Awards, call Karen Dunn at 510/939-6149.

MACROMEDIA ACQUIRES OSC, FORMS ALLIANCE WITH WAVES

Multimedia software developer Macromedia recently acquired OSC, creator of DECK II digital audio software. The acquisition is part of Macromedia's strategy to expand the capability of its multimedia products and broaden the customer base of OSC's products. "By linking our technologies with Macromedia's industry-leading products, we are delivering powerful audio software to the broadest base of customers," says OSC president Josh Rosen. In the transaction, Macromedia exchanged 62,000 shares of common stock for all outstanding shares of OSC, valued at $2.8 million.

In another growth move, Macromedia formed a software alliance with Waves, in which Waves' Version 2 suite of plug-ins complements DECK II software, and Waves is developing Xtras (Macromedia plug-ins) for Version 2 of Macromedia's SoundEdit 16.

MUSEUM OF SOUND RECORDING HOLDS FUNDRAISER GALA

The Museum of Sound Recording, founded by Dan Gaydos, held an "informational kick-off" to raise development funds last December. The semiformal event, held at the Brooklyn, N.Y., facility, featured demonstrations of vintage audio and film equipment and drew 60 local studio owners and contributors.

Gaydos says that while speaking to people in preparation for the fundraiser, "it became very apparent that the concept of a museum had been gestating in the industry for two to three decades now. Everyone seems excited about

—CONTINUED ON PAGE 16

BURN, BABY, BURN!

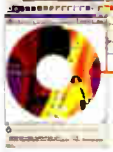
● Data discs ● Audio discs ● CD Plus discs ● Mixed mode discs ● Video CD discs

● Jewel case inserts ● Photo CD Image Pac discs

Corel CD Creator 2's Disc Wizard demystifies the CD creation process. This Wizard allows the first time and infrequent user to create CDs with little effort.

Corel VCD Creator allows users to select videos and stills from various sources and produce a video CD.

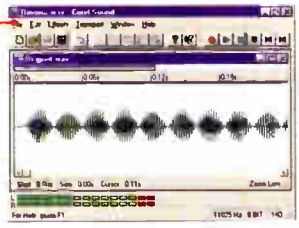
Open CorelDRAW™ 6 or other Windows® 95 OLE 2.0 graphics applications within Corel CD Creator 2 to edit images for jewel case inserts.



The jewel case editor allows the user to design and print to the surface of the CD with a supported disc printer.

Corel PCD Creator allows digital photographers to create Photo CD Image Pac discs.

Audio can be edited using the new 32-bit Corel SOUND application.



IDEAL FOR:

- Multimedia presentations
- CD-ROM publishing
- Interactive training
- Archiving data
- Distributing data
- Mixing and editing music
- Reference material
- Distributing product catalogs

EASY TO USE!

- Extensive Disc Wizard
- Drag and drop information into Corel CD Creator 2
- Context-sensitive Help
- System tests validate hardware requirements
- Support for CD Plus™ (Enhanced CD)

APPLICATIONS INCLUDED:

Corel VCD Creator - Select videos and stills from various sources, describe the menuing structure, and produce a video CD that can be played on any video CD player.

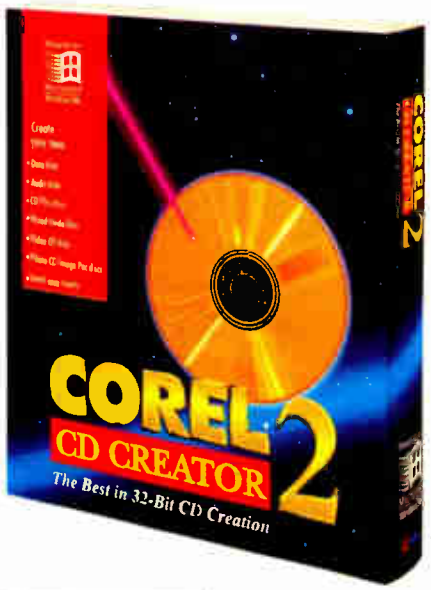
Corel PCD Creator - Display and select PCD images that are then written to a CD.

Corel CD Duplicator - Allows you to easily duplicate CDs.

Corel SOUND - A 32-bit audio editor that includes many special effects.

Corel Session Selector - Enables you to select any session of a multisession disc.

XingMPEG™ Software - Includes XingMPEG Encoder™ and XingMPEG Player™ software for video CD. Encoding boards are not necessary, but can be used if available.



KUR-0195

Designed for Microsoft® Windows®95

The PC Zone™ Your Catalog SuperStore

$329.98*

1-800-258-2088

*US$ plus applicable taxes

COREL

http://www.corel.com

Call now for faxed literature!
1-613-728-0826 ext. 3080
Document # 1015

FEATURES:

- 8 tk. simultaneous disk recording
- Non-destructive editing
- Multiple TAKE function
- Expand to 128 tracks
- Link up to 8 machines

You Could Always Hear What AKAI Did For Your Music . . .

In 1992 we introduced low cost disk recording with our 4-track DR4d. Thousands of DR4d's have found their way into broadcast facilities, recording studios, post production houses, and project studios. Combining our experience with input from thousands of end users, we created the DR8 and DR16. Whether you're just starting out with your first 8-track, upgrading your current tape-based MDM, or even if you're planning on a double-whammy, 128-track, multi-interfaced, graphically-based, post production facility, the new DR Series from Akai will serve your needs and grow with you in the future. It's an important fact to consider when someone tries to sell you a "budget" digital recorder that never really meets your needs. Check out these features and you'll "see" what we're talking about.

MORE FEATURES:

- 18 bit ADC • 64X oversampling
- 20 bit DAC • 8X oversampling
- 24 bit internal processing
- 16 channel digital mixer
- Dynamic MIDI mix automation
- Built-in mic preamps
- 2AUX sends
- 109 point autolocator
- AES/EBU and S/PDIF digital I/O
- 50 pin SCSI port

Record/Edit The new DR Series utilize our latest 24-bit internal processing technology enabling simultaneous 8-track recording with the transparent digital audio quality that has become an Akai trademark

Three dedicated LSI's (Large Scale Integrated circuit) for recording, mixing, and optional EQ provide real-time performance and stability of operation that computer based units simply cannot provide.

Real-time random-access editing features like copy, insert,copy + insert, move, move + insert, erase, delete, slip, and sliptrack inspire creative efforts that are simply unthinkable with tape based recorders. The TAKE function allows you to record up to five separate takes of a critical solo, or enables you to compare separate effects treatments of a singular passage. The jog and shuttle wheels make finding precise edit points a breeze, while the familiar tape-machine style transport controls and autolocator make operating the DR Series recorders like working with an old friend.

DR8 - $3495.00 Sugg. Retail Price
8 Track Disk Recorder

DR16 - $4995.00 Sugg. Retail Price
16 Track Disk Recorder

EVEN MORE FEATURES:

- Balanced 1/4" TRS in/out
- Switchable +4/-10dB line levels
- 8 in 8 out + stereo master (DR8)
- 8 in 16 out + stereo master (DR16)

Media The DR8 can be equipped with an optional internal 1 GB SCSI drive, while the DR16 is available with an optional 2 GB internal SCSI drive. The DR Series recorders are both equipped with a standard 50 pin SCSI port alowing a combination of up to seven SCSI drives with disk overflow recording capability. Lists of compatible drives are available from Akai product information.

Data backup is achieved through standard audio DAT or Exabyte.

At the time of this writing, the Iomega Company is preparing to go into production with their new 1 GB "JAZ" drive, a removable media SCSI drive which will greatly enhance the capabilities of our new DR Series recorders. Stay tuned for more info in our upcoming ads. Better yet, test drive a new DR Series recorder today at your local Akai dealer.

Now You Can See It.

OPTIONS:

- SuperView™ SVGA card - $699
- ADAT interface - $299
- MIDI interface - $299
- S.M.P.T.E. read/gen - $379
- RS422 video sync - $299
- BiPhase film sync - $299
- 2nd SCSI port - $299
- MT8 MIX controller - $799
- 8 channel 3 band parametric EQ - $550
- 16 channel 3 band parametric EQ - $699

Mixing Some of our competitors' disk recorders use a portion of their recording LSI to provide mix capability. While this saves money, it can also produce audio artifacts like "zipper" noise when adjusting such critical functions like EQ, pan, and fader level. On top of that, many disk recorders won't even let you make real-time adjustments during mix down, eliminating a critical part of the creative recording process. The heart of the DR mixer is a 16-channel, 24 bit custom LSI designed to provide real-time dynamic digital mix capability. Built-in 99 scene snap-shot automation for all functions and dynamic automation via external MIDI sequencers, combined with 8 or 16 channel 3-band parametric EQ option, ensures that the only limit in the DR Series mixer is your imagination. With its built-in 16 channel mixer, the DR8 becomes the perfect compliment to any 8-track recorder you might currently own. It can mix down its 8 tracks of internal digital audio with an additional 8 inputs from a sampler, tape machine, or a live performance, all in the digital domain. The MT8 mix controller provides a 16 track console format for dynamic remote control of all mix and EQ parameters.

(Monitor/Keyboard/Iomega Drive and Batteries not included.)

SuperView™ We sort of went into a frenzy packing new features into our DR8 and DR16. When we stepped back to take a look at what we'd done, we realized we crammed a whole roomful of equipment into a single 5U box. In order to help keep track of everything that's going on inside our "studio in a box", we developed the SuperView™ SVGA monitor board. SuperView™ mounts internally in the DR8 or DR16 and provides envelope and track information for up to 16 tracks of audio, as well as region highlighting for record, playback, and edit. SuperView™ is further enhanced by 16 track level meters with indicators for left/right master out and aux 1/2 out. The time indicator will read in the same format as the DR front panel. SuperView™ requires no external computer, simply plug your SVGA compatible monitor into a SuperView™ equipped DR Series recorder and you're ready to go. SuperView™ enables real-time video representation of audio status; no waiting for screen re-draws. What you hear is what you see.

Keyboard Interface To increase the power of SuperView™ even further, we added an ASCII keyboard input to the SuperView™ card, allowing a standard ASCII keyboard to operate as a control interface for SuperView™ equipped DR Series recorders. Function keys will provide the ability to zoom in on a single track, as well as zoom in/out timewise for precise edit capability. All tracks and locate points can be named, allowing you to manipulate and track large amounts of data in a very simple manner. A unique interface has been developed to allow track arming, transport control, and edit functions directly from the keyboard, providing enhanced productivity through an intuitive human interface design.

AKAI DIGITAL

Akai Digital
1316 E. Lancaster Ave.
Fort Worth, TX 76102, U.S.A.
Ph. 817-336-5114
Fax 817-870-1271

INDUSTRY NOTES

Jack Kenney was appointed president and CEO of **Quantegy Inc.** (Redwood City, CA)...Northridge, CA-based **JBL Professional** named **David Kimm**, formerly of Apogee Electronics, to the position of director of recording and broadcast electronics. In other JBL news, **Mark Spector** was promoted to director of marketing communications, worldwide, and **Tom Weeber** was promoted to director of sales, U.S. and Canada...Seattle-based **Lone Wolf Corporation** changed its name to **MediaLink Technologies Corporation**, and is located at 18 West Mercer street, Ste. 300; Seattle, WA 98119. Phone 206/284-9770; fax 206/284-9771...**TOA Electronics** appointed three new regional sales managers: **Randy Millis** is directing Southeast sales, **Randy Moore** manages Central U.S. territories and **Brian Griswold** directs Northeast and Middle Atlantic regions...In an expansion move, **Soundtracs** (Surrey, UK) appointed **John Carroll** to the post of managing director of their subsidiary company, **Spendor Audio Systems Ltd.** Carroll was previously sales and marketing director of Soundtracs...**Pinnacle Micro** (Irvine, CA) announced the signing of an agreement with **D&H Distributing**, to market and sell its rewritable optical product line... San Jose, CA-based **Velodyne Acoustics Inc.** brought on board **Ron Haverkamp**, previously of Carver Corporation, as both international sales manager and general manager of the pro audio division. Also joining was marketing manager **Eileen Tuuri**, who recently served as marketing manager for Dolby Laboratories...**Clive Green & Co. Ltd.** (Bedfordshire, UK), manufacturer of Cadac consoles, hired **Mike Mann**, formerly of Soundcraft, as head of sales, Europe...**Tom Burrows** joined **BASF Magnetics Corp.** as studio account manager and will be based in Simi Valley, CA. BASF also promoted **Leslie Vaughan** to the position of product manager, studio products, based at corporate headquarters in Bedford, MA... North Hollywood, CA-based Audio **Services Corp.** (ASC) changed its name to Location Sound Corp. (LSC)...**The National Systems Contractors Association** (NSCA) of Cedar Rapids, IA, appointed **Charles R. Wilson** as executive director. Wilson is leaving his executive position at Communications Engineering to work full-time with the association...**Renkus-Heinz Inc.** announced the addition of a new facility to meet increasing production requirements and an expansion of corporate headquarters in Irvine, CA...Barrington, IL-based **Bag End Loudspeaker Systems** celebrated its 20th anniversary since co-owners **James P. Mischmeyer** and **Henry Heine** began building and selling their speaker systems...**The Toy Specialists** (New York City) announced a major expansion of its pro audio/music rental facility in New York, with expansion of its Tampa facility planned for late 1996...**Sheree Parke** was appointed to the newly created post of marketing manager, engineered systems, at **Bogen Communications Inc.** (Ramsey, NJ)...**Freed International** of Stuart, FL, hired **Rosie Murphy** as director of operations and purchasing...**E-mu Systems** has a new site on the World Wide Web, hosted by Music World 3. The address is http://www.mw3.com/emu ...**Sweetwater Sound** (Ft. Wayne, IN) made *Inc.* magazine's annual list of the country's 500 fastest-growing privately held companies, with a growth since 1988 of 2,000%...**Crystal Semiconductor**, of Austin, TX, will present a seminar featuring circuit theory and system design in data-acquisition and audio applications. The half-day session will be offered in cities across the U.S. and Canada, and costs $25. For information, call 800/888-5016, ext. 2526. ■

—FROM PAGE 12, CURRENT

and supportive of a showcase to exhibit their lifelong passion—the search for and seizure of the ultimate in sound recording and reproduction."

The museum is a nonprofit educational project geared to offer learning institutions and the general public a "hands-on" history of audio through tours, lectures, demonstrations and workshops; it is scheduled to open in late 1996. For more information or to donate funds or equipment, call 718/875-6140.

SHOW UPDATE

The *inter*mediaWORLD convention will be held at San Francisco's Moscone Convention Center from March 5-7, and is expected to draw more than 20,000 attendees. Call 800/246/8371 for more information.

This year's NAB show will take place April 13-18, in Las Vegas. More than 150 sessions and 1,000 exhibitors will be featured. For details, call 202/429-53530.

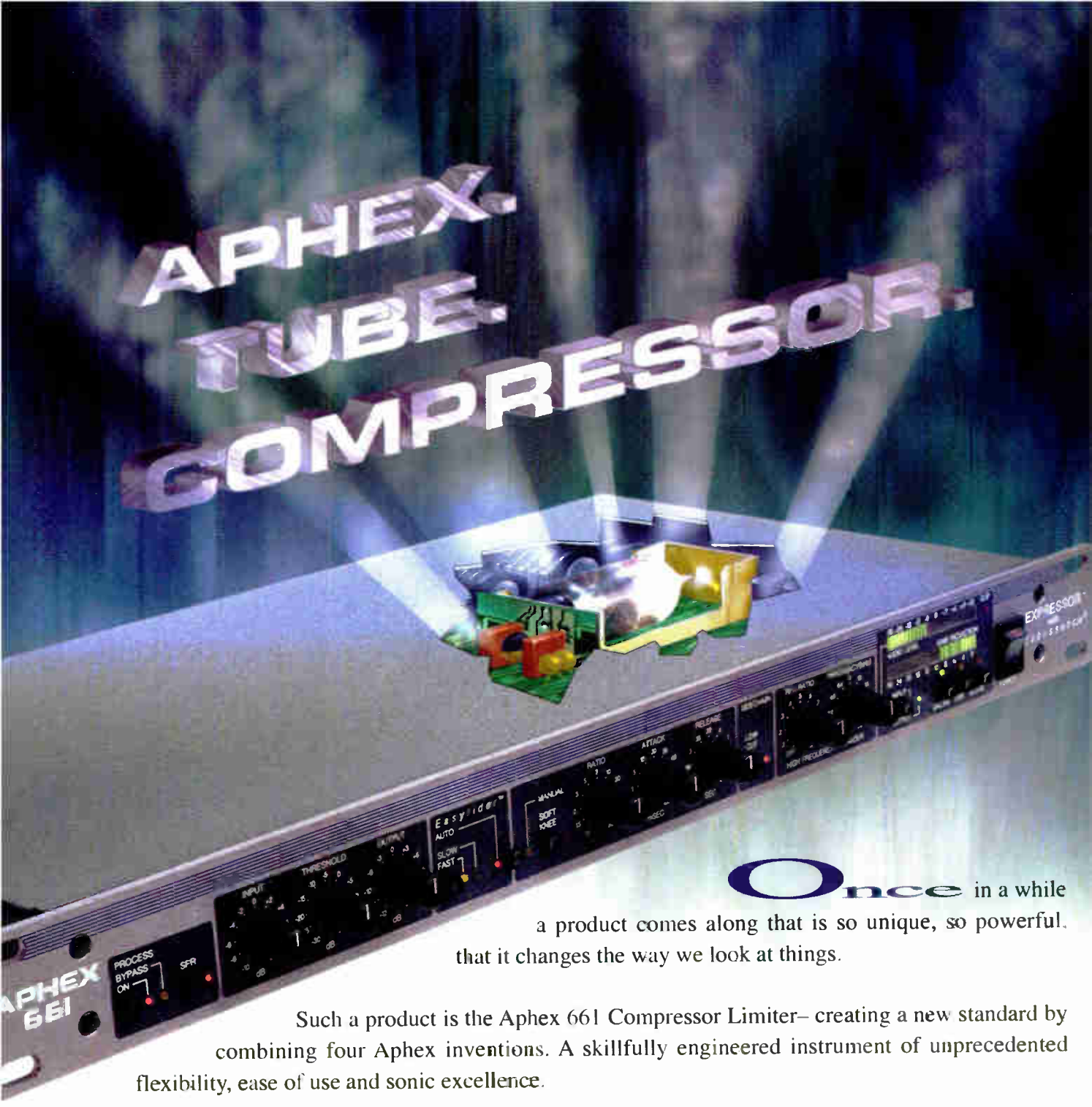
EnTech 1996 (Entertainment Technology Trade Show and Conference) will happen in Sydney, Australia, April 23-25. Phone 61-2 876-3530 for information.

St. Louis will host the The National Systems Contractors Association Expo '96, to be held May 12-14. This year's show promises to be the biggest ever, topping last year's 448 exhibitors and 6,000 attendees. For more information, call NSCA at 708/598-9777.

SEMINAR UPDATE

Harry Donovan and Jay Glerum are continuing their series of three-day seminars that focus on principles of stage and arena rigging. Four special dates have been announced: Principles and Operations, February 26-28, Anaheim, Calif.; Principles and Operations, March 25-27, Atlanta, Ga.; Principles and Operations, June 3-5, Chicago; Personal Safety and Practical Applications, June 6-9, Chicago. Call 812/278-3123 for details.

Syn-Aud-Con will hold three-day sound engineering seminars, conducted by Pat Brown, throughout 1996. The following dates and locations have been announced: Standard Seminar, February 19-21, Atlanta, Ga.; Standard Seminar, March 25-27, Greenville, Ind.; Standard Seminar, April (dates TBA), Atlantic City, N.J.; Advanced Seminar, April 29-May 1, Greenville, Ind.; Standard Seminar, June 10-12, Salt Lake City. For more information, contact Syn-Aud-Con at 800/796-2831. ■



Once in a while a product comes along that is so unique, so powerful, that it changes the way we look at things.

Such a product is the Aphex 661 Compressor Limiter– creating a new standard by combining four Aphex inventions. A skillfully engineered instrument of unprecedented flexibility, ease of use and sonic excellence.

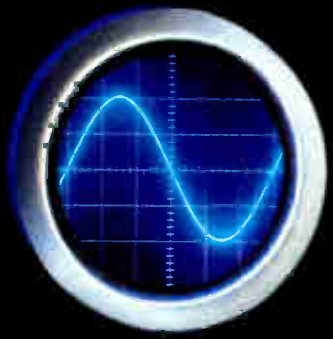
Tubessence® - true vacuum tube technology and warmth; High Frequency Expander (HFX)™ for automatically retaining the high frequencies lost during compression; Easyrider® circuitry for an Auto mode that really works; and the world's best VCA - the Aphex 1001, the fastest, most accurate and transparent available.

The Aphex Model 661 - another revolutionary step toward improving the way the world sounds.

APHEX SYSTEMS

Improving the way the world sounds SM

11068 Randall Street, Sun Valley, CA 91352 • Tel: 818-767-2929, Fax: 818-767-2641



AUDIO INTEGRITY

You are busy trying to create the perfect mix, so we'll get right to the point. The new Sony DPS-V77 is a single rack powerhouse – a digital multi-effects signal processor that combines the best of our DPS Series, for an impressive array of effects including reverb, delay, modulation, dynamic filtering and more. The V77 also offers balanced and unbalanced analog and digital I/Os, with high resolution 24-bit A to D, 20-bit D to A converters and Sony's proprietary 32-bit digital signal processing. Result: great sound in, better sound out.

DUAL EFFECTS ARCHITECTURE

With 50 effects per block, the dual block architecture of the DPS-V77 makes it extremely flexible, since it allows for various serial and parallel configurations. Each block is equipped with a switchable pre or post effect EQ. You'll find 198 user presets in addition to 198 factory presets. You'll also discover several new, ear-opening effects, from intelligent pitch shifting to irregular delays, to mono/stereo conversion, and three-dimensional spatial placement. The most important feature, however, may be what this unit *doesn't* come with.

IT'S A SIGNA

IT'S A GARBA

MORPHING

Nietzsche once said, 'get rid of the junk you don't need.' Or something like that. Anyway, sound philosophy for life is sound philosophy for signal processors. So, that annoying drop-out you get switching

L PROCESSOR.

GE DISPOSAL.

between effects? It's history. Eliminated. Toast. Seamless transition – say, between the tail end of a reverb into a chorus – is now reality. With this 'morphing' function of the DPS-V77, a new effect (like a chorus or flange) can begin while a current effect (like a reverb or delay) is decaying, giving you from 0 to 10 seconds transition time.

USER FRIENDLY

Take a good look: nice, big LCD display and "jog/shuttle" knob. Numeric key pad, descriptive icons. Assignable direct access keys, located where they ought to be. Call up a preset and up to 6 of your most frequently used parameters are there instantly. All this, plus full MIDI control. So work flows quickly, smoothly, easily. As easy as calling 1-800-635-SONY, ext. DPS, for more information. Imagine. No more fumbling, grumbling, mumbling with a whole rack of trouble. No more extraneous junk. If only the rest of your problems were this easy to get rid of.

SONY

"DAT'S ALL SHE WROTE"

THE ROAD GETS 1,000 TIMES AS NARROW, THE TRAFFIC GETS 1,000 TIMES WORSE

ILLUSTRATION: DAVE EMBER

We all know by now that the actual data path width on a DAT is insanely small. You can only make ferrite crystals so small, and deposited metal so much smaller. You can only make the head gaps so small. Basically, I feel that we have gone a bit too far in our swan song effort; in our final gasp; in the last hurrah. I guess it was to be expected, one more try at serial tape storage. Oh, well.

Add in the problems of a data path so small that a single speck of dust is a veritable 18-wheeler by comparison. And you can imagine how unfortunate that comparison is if that 18-wheeler is parked on *your* data path.

Spinning heads, different types of head and capstan motors, different transport design concepts—these are some of DAT's least favorite things. Then there's the large-format machines, same spinning heads, larger cassettes.

So I guess that you guess that I am about to slam these things big time, to beat them to death just for the sport of it. Well, actually, no, I am not about that. You know me better than that. I am a friendly, nonaggressive guy.

BY STEPHEN ST.CROIX

What's amazing is that this perversion of decades-old video technology actually works—sort of, and to varying extents. Think of the millions of DAT masters out there, the plethora of ADAT mixes, the 27 DCC masters (I guess if it doesn't make your head spin, it won't fly), the DA-88 tapes. These formats are viable even in their freakiness. Further, they brought digital recording into the homes and smaller studios of the world in a way that never could have happened otherwise. They have earned their places in history, so much so in fact that I think they will survive in some form until true random-access (round)

SPIRIT 8

THE EXTRAS COME AS STANDARD
THE PRICE COMES AS A SURPRISE

Spirit 8 is a quiet, compact and rugged 8-bus mixing console, hardly surprising from a company with over 22 years of knowhow in audio design.

What may be surprising is that it comes with every feature you could wish for, as standard, at a price that will make the competition wonder how we did it.*

METER BRIDGE BUILT IN

UP TO 40 BULLET-PROOF MIC INPUTS

4 MUTE GROUPS

INDIVIDUAL CHANNEL BOARDS

10 X 2 MATRIX SECTION

TRAMIC+ PREAMPS
mono channels. An
redible 66dB of gain
nge provides 28dB of
adroom - enough to
comodate virtually
y input signal, from
e hottest line level
ectronics to the lowest
el condenser mics.
V PHANTOM POWER
dividually selectable
each mono channel

GH PASS FILTER at
0Hz with steep
dB/octave slope.
sential for combatting
ge rumble and mic
pping (mono
annels)

BAND EQ with 2 swept
ids on every mono
put. ■ 2-BAND EQ on
reo inputs

EQ In/Out bypass
itch on every input

6 AUX buses with 6
ntrols, 2 of which are
lectable pre- or post-
der at the master.
ternal solderless
mpers can be accessed
r pre- or post-EQ
nfiguring

8 GROUP BUSES

4 MUTE GROUPS
r scene setting

Multi-tap PEAK/PFL
dicator

IRECT OUT on every
ono channel allows
ultitrack recording or
dividual effects sends
nternally selectable
re- or post-fader for
ve recording)

MONO INPUT

DUAL STEREO INPUT

GROUP SECTION

■ 8 STEREO RETURNS for additional stereo sound sources or effects units: 4 have EQ

■ 10 X 2 MATRIX section for additional mixes

- 4 FRAME SIZES: 16, 24, 32 and 40 channels
- UP TO 64 INPUTS AVAILABLE (40 channel version)
- 4 STEREO INPUTS with 2-band EQ and full access to Auxs
- METER BRIDGE AS STANDARD, showing mono input, group and master levels
- INDIVIDUAL CHANNEL PCBs for ease of maintenance and replacement
- Every pot INDIVIDUALLY FASTENED to the steel facia, the professional way, to cope with knocks
- RUGGED "NO-TWIST" STEEL CHASSIS built to survive hectic tour schedules
- Side-cheeks can be removed for FLIGHT CASE INSTALLATION if desired

$4,299	16
$5,299	24
$6,399	32
$8,299	40

* Prices are 1995 US suggested retails

Also available:
Spirit Live 3² 3-bus
Spirit Live 4² 4-bus

APPLICATIONS

- Front-of-House Mixing
- Theatre/Venue
- Installations
- Touring
- Recording direct to multitrack

Spirit by Soundcraft™ Inc.,
11820 Kemper Road,
Auburn, CA. 95603
Tel: (916) 888 0488
Fax: (916) 888 0480

SPIRIT
By Soundcraft

A Harman International Company

USE READER SERVICE CARD FOR MORE INFO

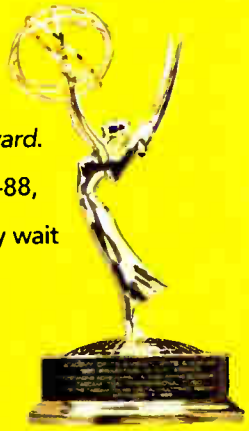
How the DA-88 became the hottest digital recorder for post production.

For starters, virtually every production studio has at least one. If your business is post-production audio for dialog, sound effects and music — nothing is faster, nothing is more reliable and nothing sounds better than the TASCAM DA-88. Fact is, when deadlines are looming, the last thing you want is a machine that spends more time in the shop than in the studio. Plus you need a machine that synchronizes and locks up fast — typically 2 seconds or less. What's more, only the DA-88 can record an entire feature on a single tape. That's why the TASCAM DA-88 is the choice of production professionals. And that's how it became the undisputed industry standard.

Why you need to get a DA-88 in your production studio.

Because without one your studio could be wasting time and losing money. The DA-88 seamlessly integrates into any production studio to directly interface with SMPTE, MIDI and Sony 9-pin equipment — TASCAM's expert software makes it possible. Its blazingly fast transport means you spend less time waiting and more time producing. Plus, a truly modular design makes expanding and enhancing a DA-88 with third-party products quick and easy and makes it simple to service.

Fact — the DA-88 delivers what production professionals demand — economy, reliability, speed and synchronization that really works. That's why the DA-88 is the only modular digital multi-track to win the coveted *Emmy Award*. So, whether you already own a DA-88, or are waiting to buy your first, why wait another minute?



TASCAM®

Take advantage of our experience.

FAX-BACK INFORMATION-SPECS VIA FAX 800 • 827 • 2268 REQUEST DOCUMENT NUMBER 2550

media digital recording becomes fast enough and inexpensive enough to knock these streamers out of the water. But they have to be that last of their kind.

THE PATH OF ENLIGHTENMENT

We have all been hearing the stories of direct digital copies sounding different, of DATs self-destructing a little with each playback, of DATs not playing after 20 or 30 runs, or of a DAT made on one machine refusing to be read on another. There seems to be a bit of a data-integrity problem implied by these persistent rumors. It seems that the DAT format in particular is as fragile as one might imagine after seeing the technical specs. I mean, a human hair is small enough, and less than that is smaller than small enough, apparently.

But we need these formats, as they save the day for a considerable portion of the real-world recording community. So what is it that I *do* want, then? Well, that's easy. I want to know what's going on. I want to know all the time, with no effort. I want the truth. I want BLINKING LIGHTS!

In an attempt to reliably recover data from these formats, standard concepts are used, such as redundant information, checksum error coding, and other tricks o' the trade, just like on CDs. But *unlike* CDs, these tricks aren't occasionally brought into play to recover from some Taco Bell fingerprint or Golden Retriever tooth mark. No, they come into play a lot—in some cases, almost constantly!

I believe that Panasonic, for example, allows you to run a record of accumulated recovered and non-recovered error counts. Other manufactures offer similar display options, sometimes only after holding down 174 keys during power-up. I guess they don't really want to make this too easy, as the results can be pretty shocking.

Like most of you, I use DATs all the time, *never* for digital computer data, but for shipping final 2-track digital masters. Whenever I buy a DAT machine, I buy three identical machines,

I want to know
what's going on.
I want to know
all the time,
with no effort.
I want the truth.
I want
BLINKING LIGHTS!

and I try to buy only machines with optical interfaces. I then gang all these machines together and operate them from a single remote. Every time I need to record a DAT master, I load the three machines, drop them all into record together and make my shipping master, my safety and my panic log together.

This is how I have done it for the last several years, but in the past two, I have begun to ship on CD-Rs, and then I make two—one to ship and one safety. I do not believe in DAT integrity for long-term archiving in any way. You already know what I believe concerning CD-R archiving.

ON THE ROAD AGAIN

But back to the original path. For times when I am forced to master to DAT, I tie one more machine to my DAT Stack: an old pre-war Sony 2500. It is

Time-Align®

An honest system
beyond audible response

While DC to LIGHT response is sometimes joked about in audio circles, it is very desirable to extend a system's bandwidth beyond the audible range because it provides a real sonic improvement.

Unlike any other monitor system, our Studio-A system responds flat from above 20 kHz down to 8 Hz and meets the Time-Align® specification from E.M. Long, even in the bass range.

The MM-8 is a precision 8" coaxial studio monitor with a calibrated flat frequency response and a licensed Time-Aligned™ crossover. Precisely manufactured and tested, the MM-8 system offers you an honest listen to your mix.

The D10E-S INFRA-sub™ utilizes patented ELF™ technology. Experts agree the ELF™ technology offers the most superior sounding and honest low frequency reproduction available.

20 years of excellence

BAG END

Modular Sound Systems, Inc.
P. O. Box 488 Barrington, Illinois 60011
Phone 708 382 4550 Fax 708 382 4551 Internet info@bagend.com
For Canadian distribution call A.C. Simmonds & Sons Limited at 905 839 8041

TEC

huge, hot, clunky and sounds so bad it makes you laugh: It's *old*. You can't use it for audio at all, but I keep this $5k monster around for one reason: *It has error lights*!

And *that* is what I want. No light for okay, green light for Error Correction (reconstruction), yellow for Making-It-Up-as-It-Goes-Along (interpolation), and red for I-Give-Up (muting). I want this. Everybody I ask wants this. It is big fun to make a DAT and then play it 20 times in a row and watch all the colored lights, more and more with each play. It is fun to record a DAT on one machine, play it and see a few blinks, only to play it on another machine and be treated to a veritable multicolored light show reminiscent of the best of the '60s.

WHY OH WHY CAN'T I?

So? Where are the little add-on boxes that do this? Well, there seems to be a small problem. This error information doesn't make it into the final digital datastream at the deck's output, so you can't just make a reader for it. You have to get into the machines themselves and grab this death data at the source. This leaves only two paths: the manufacturers could put nice bright LEDs on the front panel that dynamically show you why the playback sounds different, or even which brands of tape your machine does best with, or perhaps when it is time to clean or replace the head drum. Yeah, right. In the words of that technical guru Judy Tanuta, "It could happen."

Or some company could get brave enough to make a box that requires a little home surgery. Perhaps a few clip-on connections, carefully mapped out for each popular DAT transport, and a little cable sneaking out through some cooling slot to the decoder Box-o'-Death. This would be very nice, very educational, very revealing and very worthwhile. I want one, but I have forgotten how to solder. So if any of you out there decide to tackle this, please write *Mix* and let me know. If someone already has, let me know that.

I think that a DAT machine without these lights of danger and death is like a car without a tachometer. You never really know what's going on, so you have to blindly hope everything is okay. I don't think so. ■

SSC has a Harley with only a tach, and a Sony DAT with only an error light. Both are illegal, both are mandatory.

ABSOLUTE MAGIC

DIGITAL PROCESSING:

NEVE DTC

WEISS 102 SERIES

ANALOG PROCESSING:

NEVE :

AVALON

SPL

CONVERTERS:

PRISM SOUND AD-1

PRISM SOUND DA-1

APOGEE D/A 1000

APOGEE A/D 1000

WADIA

NOISE SHAPING:

PRISM SOUND SNS

DAW:

SONIC SOLUTIONS

CD RECORDERS:

SONY

PHILLIPS

MONITORS:

DUNLAVY SCIV

MEYER SOUND HD-1

DIGITAL ROUTING:

2-SYSTEMS

TAPE MACHINES:

AMPEX

SONY

STUDER

MITSUBISHI

DISC CUTTING:

NEUMANN

STUDIO DESIGN:

PARTS

Mastering

Mastering Engineers: Leon Zervos, Tom Brick, Jim Brick, Brad Johnson, Bruno Opitz

Absolute Audio, Inc. 56 W. 45th St., 3rd Floor. New York, New York 10036

Contact: Murat Aktar at 212.730.2044 • Fax 212.730.2204

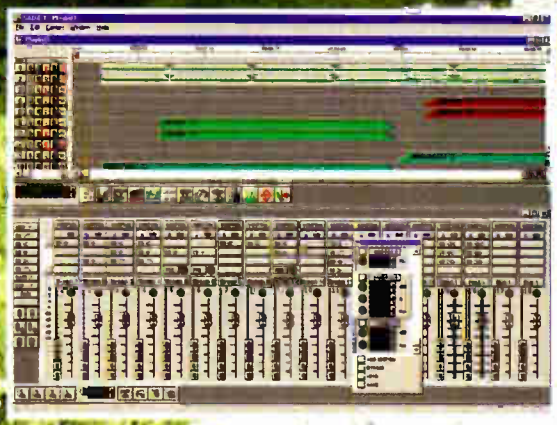
ABSOLUTE AUDIO

USE READER SERVICE CARD FOR MORE INFO

ABSOLUTE AUDIO

Studio Audio Digital Equipment, Inc.
1808 West End Avenue, Suite 1119, Nashville, TN 37203.
Tel: 615 327-1140 Fax: 615 327-1699

world...



The SADiE turnkey an industry standard.

For three years SADiE has given unrivalled product development and outstanding customer care.

The SADiE Mobile will record, playback and monitor like any other portable field recorder. But, uniquely, the file format is fully compatible with SADiE requiring zero up-load time.

there are other designs, there are other solutions...

TAKING THE PERSONAL TO THE PUBLIC

WHEN IS A PROJECT NO LONGER A PROJECT?

BY PAUL D. LEHRMAN

Imagine a violinist who, every time she needs to tighten her bow, has to have a special assistant run in from the wings. Imagine a timpanist who, when the score calls for changing the low drum from G to F, must call on someone else to move the pedal. Imagine a guitarist who, when going from rhythm to lead, has to have someone offstage throw the switch that controls the sound. Now imagine a composer who, every time he wants to record some music, must hire a technician he doesn't know to run equipment he doesn't understand, and pay for it by the minute out of his own pocket.

Up until just a few years ago, that last example was pretty much the way things had to be. Making music and recording it were two very separate disciplines, each with its own rules, unions and priesthoods. But music and recording have always been dependent on each other, and so it's not surprising that in recent years, the art and science of each have merged. Recording technology is now a part of many musicians' craft, and most recording engineers have a musical background. For the first time since recording began 118 years ago, today's musical artists have a choice: They can collaborate with engineers in commercial studios, or they can go it alone.

Having my own studio was my dream from the first moment I realized I could record music on tape. As a kid, I visited established recording studios, even got to play in some once in a while, but I was always put off by the idea of paying someone else to record me, worrying about the time, and mindful that the next client, just like at the doctor's office, sat outside in the waiting room. With so much pressure, I thought to myself, how could I get anything done? I read how The Beatles and Jefferson Airplane were

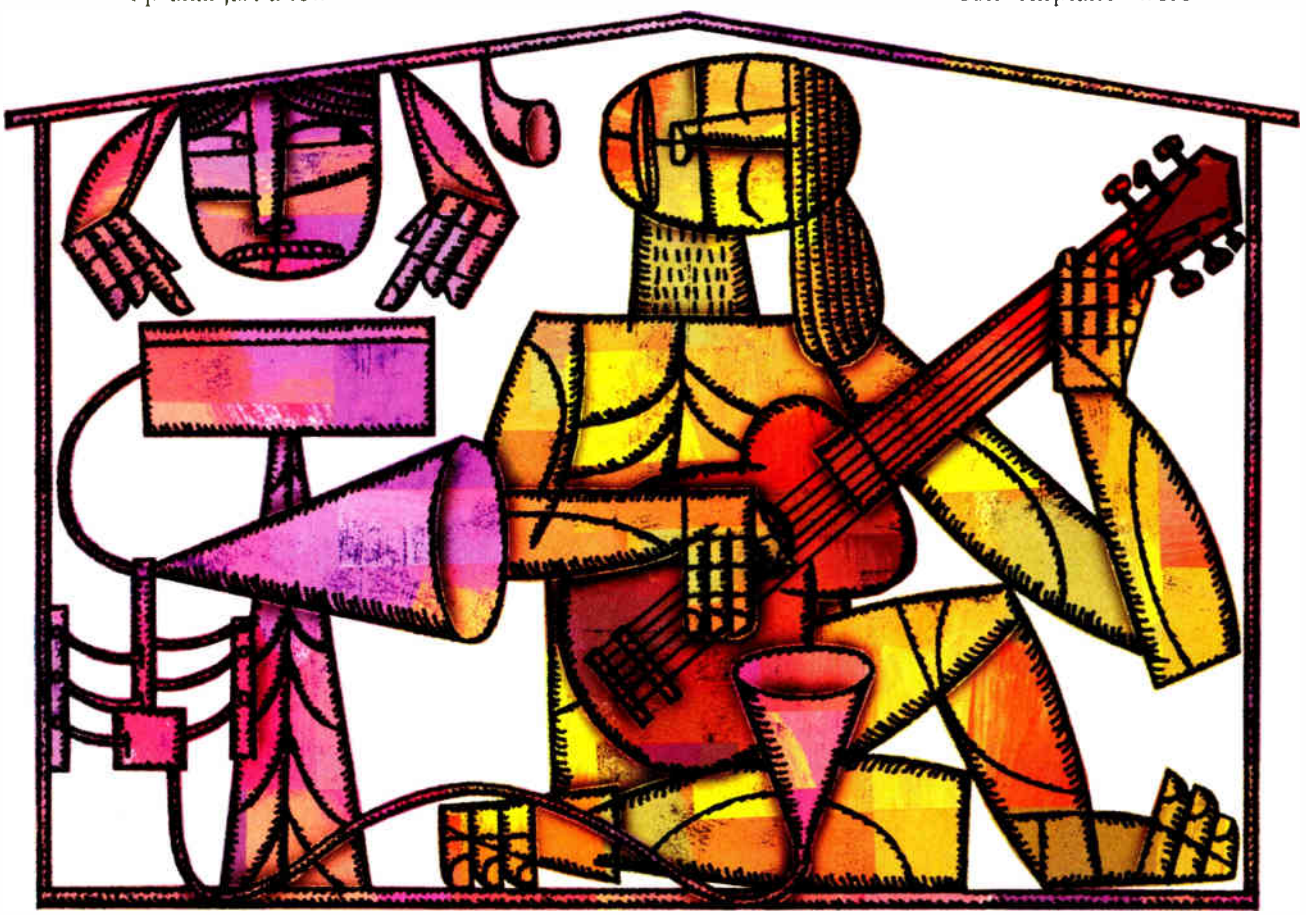


ILLUSTRATION RICHARD DOWNS

Magic

for your ears

You will love the Wizard M2000. This digital multieffects processor is specifically designed for the artist within you. Based on the unequaled DARC™ chip, the two independent engines deliver uncompromising effects, meeting the high performance demands of your ears. The clarity, density and feel is beyond anything you have ever experienced before. It will lift your music to the high quality level that your ears require.

We realize that you are busy creating music. TC's engineers are artists themselves, and have therefore gone to great length to make the M2000 intuitive and easy to operate. For example, it has a large clear screen; and all parameters are maximum one menu level away - no more browsing through multiple menu levels. M2000 - Combine your artistic skills with science and create magic.

For information about your nearest TC dealer, please call 1-800-798-4546

Wizard | M2000

Art + Science = Magic

t.c. electronic

TC Electronic Inc., 705-A Lakefield Road, Westlake Village, CA 91361 Phone: (805) 373 1828 Fax :(805) 379-2648 Email: usinfo@tcelectronic.com WWW: http://www.tcelectronic.com

spending hundreds of hours in the studio working on wonderful new music, and that validated both my feelings and my fears. I reveled in the recognition of the recording studio as a creative tool, but I despaired at ever achieving the status that would convince someone with deep pockets, like a record company, to give me that kind of freedom.

At the age of 15 I tried to solve this dilemma by building a studio. Because it was in my parents' living room, centered around their grand piano, I knew I wasn't going to be making rock 'n' roll records. Instead, I concentrated on electronic music. My "project" studio consisted of, besides the piano (which I filled with paper clips, bits of cellophane and other Cage-ian appurtenances), two Lafayette Radio microphones, a Sony three-head (!) tape deck with sound-on-sound (!!), a Hagstrom electric guitar and a Theremin I built, only half of which worked (the pitch control, not the volume). I recorded one track of weird noises, went back and overdubbed another one, and kept doing that, adding tape echo through a speaker as I went along, until the hiss threatened to overwhelm everything. After a few days, I had several pieces of...well...electronic music. The tracks might not be much to listen to today, but they impressed the heck out of a couple of college admissions officers, and it sure was fun.

Despite having worked quite happily in plenty of commercial studios since then, I always feel better in my own space, with no one watching and only my ability to stay awake limiting the amount of time I can spend getting something right. The studio I have at home today, with its samplers, hard-disk recorders, effects units, drum and wind controllers, and sync boxes, is capable of doing just about anything I want. It isn't much prettier than that maze of wires and boxes around my parents' Steinway, but on the other hand, it didn't cost much more than the Steinway would today.

Obviously, I'm not alone, as evidenced by the theme of this issue and the fact that entire publications, companies and distribution outlets have grown up around the idea of the personal studio (how it became "project studio" is a story we'll leave to the marketers). But there's a recent trend in the personal-studio world that troubles me greatly.

If you have your own studio, you've invested a certain amount of money into it, and unless you're living off a trust fund, you'd like to get some of that back, which means you need to find people who will buy the stuff you create in your studio, whether it's records, commercials, soundtracks, multimedia or whatever inspires you. But if you're just getting started, it may be awhile before you can recoup your investment, and even once you're established, that work flow can be uneven. The equipment is sitting there and you know how to run it, so why not make some money by opening your doors to the hordes of wannabe stars out there and offering your services as an engineer/producer/programmer?

Well, there are lots of reasons why not. Some of them are pretty obvious: the horrors of dealing with neighbors, zoning laws and building codes, parking, security (for both your client's equipment and yours), noise (coming in and going out), collecting money from the musicians (do I smell an oxymoron?), and explaining to your family why all these scruffy people with ques-

—CONTINUED ON PAGE 207

WHY IS SWEETWATER SOUND THE "RIGHT CALL" FOR YOUR MUSIC?

Anyone can sell you boxes. But what's best for you and your music? There's a good reason why Sweetwater has been America's fastest growing music retailer for three straight years. We understand that when you're investing your hard-earned dollars, you want to get exactly what you need, when you need it and within your budget. Why is Sweetwater best equipped to do what's right for you?

1 KNOWLEDGEABLE SALES STAFF

Our sales engineers are professionals with serious, real world knowledge of the products we represent. Most have their own studios. Many have spent years as engineers at major studios. We even have a Grammy winner on board. We make it our business to be absolutely sure the product you order is exactly the product you need.

2 HUGE IN-STOCK INVENTORY

We stock products from over 100 of the best names in the business like Alesis, Digidesign, Kurzweil, Mackie, Roland and TASCAM, just to name a few. The "other guys" may tell you they can get it fast, but how long will it *really* take? Our giant warehouse is packed with the latest gear, ready to ship right to your door — in most cases the very same day you order!

3 PRICES THAT ARE AFFORDABLE

Not only do we have the best selection of the finest products in the entire music industry, but our prices are so affordable, you won't have to take a second job just to start making music!

4 OUTSTANDING TECHNICAL SUPPORT

Got a question about a product you've purchased or are thinking about purchasing? Just give us a call! Whether you're a novice or a seasoned pro, our technical support team has the knowledge and experience to answer any question you might have. And no other dealer has anything like our huge, online product database that gives our staff instant access to technical information about thousands of products.

5 BUY WITH CONFIDENCE

Because if you're not totally satisfied with any product you purchase from us, we'll work with you to make it right! If you're not happy, *we're* not happy!

6 DEPENDABLE ON-TIME DELIVERY

Whether you need it in a week or a day, we have a shipping department that's up to the task. We can have your equipment packaged and shipped out within hours of receiving an order. We ship via all major carriers. Just tell us when you need it and it'll be there!

7 LATEST UP-TO-THE-MINUTE INDUSTRY NEWS

There are new products being released every day, and you want to know about them. You also want technical information and tips on making the most of your equipment purchase. That's why we're the first major retailer to maintain a full-time presence on the Internet. And why we publish our exclusive, free full color *Sweet Notes* newsletter

8 STATE-OF-THE-ART SERVICE

When your gear isn't working, you want it fixed right the first time. Sweetwater is a factory authorized service center for all the products we sell, with over a dozen highly skilled technicians trained right down to component level repairs. What's more, all the work is done right here on the premises, so your equipment is returned to you the minute it's ready with no delays and no excuses.

9 CUSTOM FINANCING PROGRAMS

We accept cash, checks and all major credit cards, but we also offer our own Sweetwater Technology Card, as well as our exclusive new line of credit accounts and leasing plans.

ADD UP THE VALUE!

Close to 100,000 customers world wide already call us. Shouldn't you be one of them? Call right now and experience the Sweetwater difference!

219•432•8176

5335 BASS ROAD • FT. WAYNE, IN 46808 • FAX 219•432•1758
sales@sweetwater.com http://www.sweetwater.com

VISA MasterCard DISCOVER

CALL NOW! YOU MAY BE **PRE-APPROVED** FOR A $10,000 LINE OF CREDIT ACCOUNT!

THE ULTIMATE MUSIC RETAILER!

Sweetwater SOUND INC.

USE READER SERVICE CARD FOR MORE INFO

Introducing...

...the first new Neumann Tube microphone in more than 30 years.

Neumann understands tube microphones. We've been making them since 1928. The U 47, M 49, U 67, and KM 53 are legendary – coveted by engineers and producers worldwide. When asked to reproduce a microphone with the 'classic' characteristics of our older jems, we decided to go one better. Enter the new M 149 Tube. Utilizing the K 49 capsule and headgrill from the classic M 49 and M 249, coupled with the transformerless FET 100 circuitry from our TLM 50, the M 149 Tube is the world's first transformerless tube microphone.

Neumann has brought more than 50 years of design excellence to the M 149 Tube, and it shows in every detail of this truly outstanding microphone. It's available now, worldwide, in limited quantities.

Neumann. The choice of those who can hear the difference.

Neumann | USA

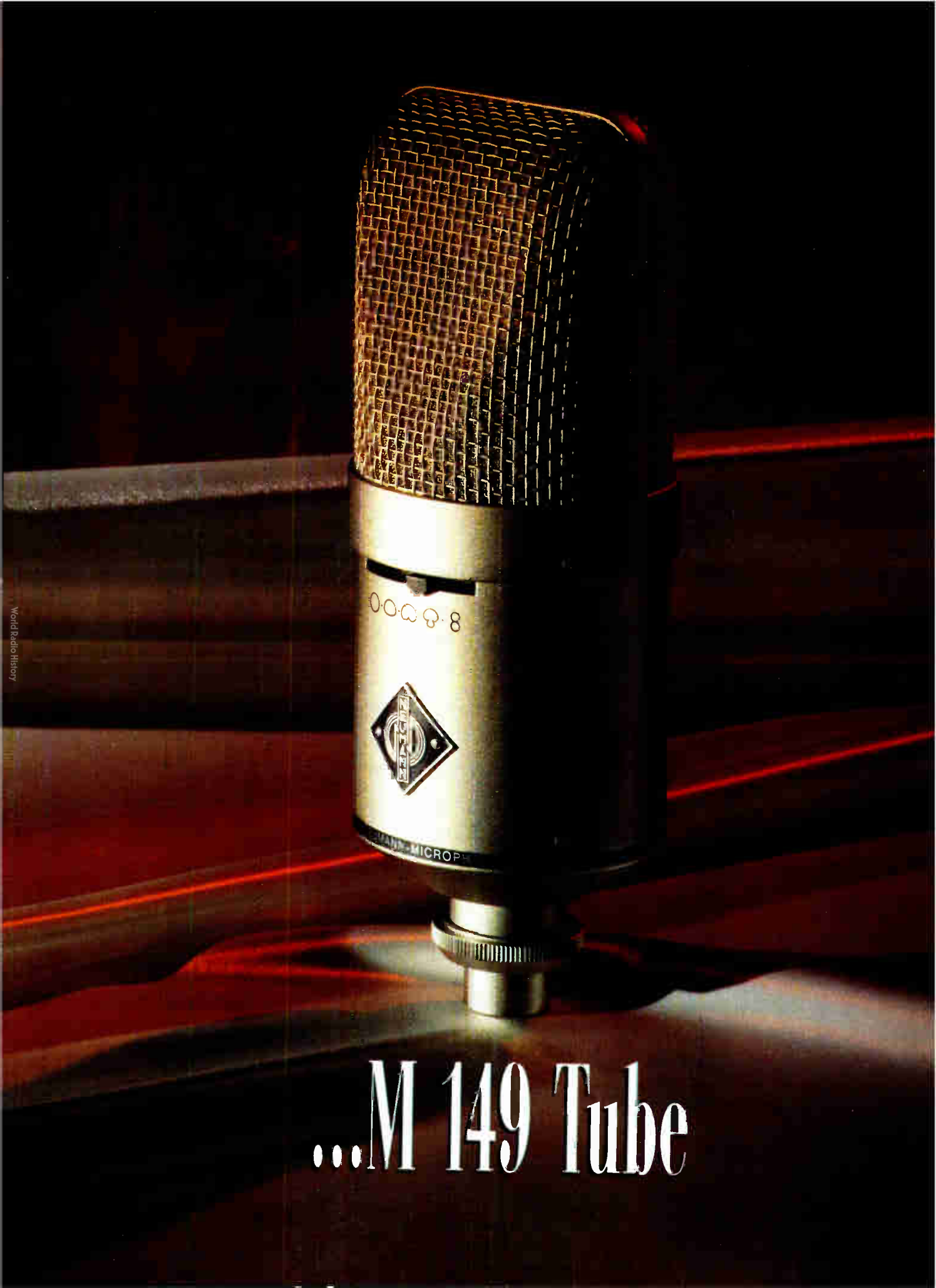
6 Vista Drive • PO Box 987, Old Lyme, CT 06371
Tel: 203.434.5220 • FAX: 203.434.3148

Neumann | USA West Coast
Tel: 818.845.8815 • FAX: 818.845.7140

Neumann | Canada

221 Labrosse Ave., Pointe-Claire, PQ H9R 1A3
Tel: 514-426-3013 • Fax: 514-426-3953

USE READER SERVICE CARD FOR MORE INFO



GREG MACKIE

FOUNDER AND PRESIDENT OF MACKIE DESIGNS INC.

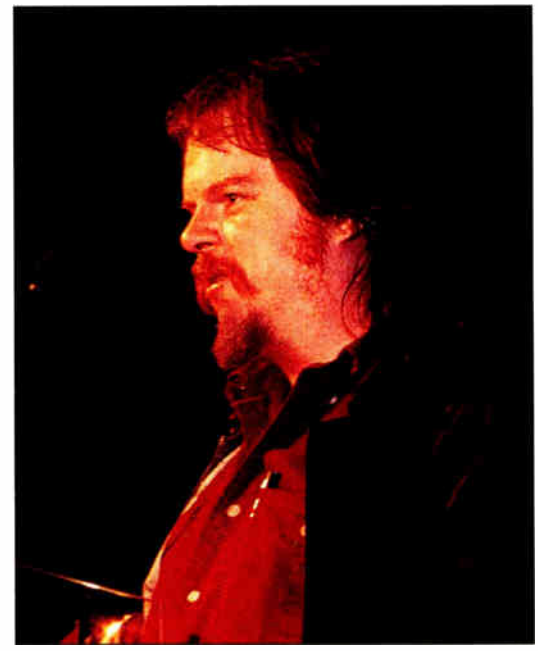
In five short years, the name Mackie has become virtually synonymous with affordable, high-quality mixing consoles for recording and live sound. But company founder Greg Mackie has been in the business for several decades. He scored a notable success with Tapco, a company he founded in the early '70s, and which eventually was sold to Electro-Voice. His second company, Audio Control, designed and manufactured hi-fi equalizers and analyzers. He set up Mackie Designs in 1988 and unveiled his first product—a 4-bus console—in 1990. The rest, as they say, is history. To go from a start-up to a company with yearly sales of nearly $50 million in just half a decade is remarkable indeed.

How would you summarize your company's overall philosophy?

Our overall philosophy is to pretty much ignore what's happened in the past and develop the absolute best products we can possibly offer at a reasonable price. We don't bind ourselves with preconceived notions that the industry has placed on certain products, but rather look at what the end-user is really trying to accomplish. And how do we best make a product which can accomplish that goal? One thing we've found time and time again is that audio quality is rarely a function of cost; it's more a function of attention to detail and the willingness to take that extra path in the prototype phase.

Mackie consoles tend to be relatively simple. I don't mean unsophisticated, but nothing real fancy; just good ergonomics and high-quality electronics. Was that your intention?

Our first mixer, the 1604, was actually fairly sophisticated for the times. But things have changed in the past four or five years, and our newer products do [offer] more sophistication. Yes, we've never aimed at the very top market; we're aiming at a market where we can sell enough units so that we can manufacture at a reasonable cost. With mixers, the only way to be able to manufacture a product of that quality at good prices [is to] use automated machinery.



In your company's five-year history of producing consoles, what new features has the industry asked for?

People are asking for more features. We have many competitors that are going after the same market. There's a rush on. Who can have the most knobs on the front panel? But we have to remember that, at the end of the day, it's the audio quality that is important, plus ease of operation—you can't just clutter up [the design] with features that aren't useful.

But people are looking for more auxiliary sends, more sophisticated EQ, automation?

Yes, all of those. More EQ is number one, more aux sends... part of the market wants [Ultramix] automation. More channels, of course, but it depends on the application. Right now, we sell to distinctly different markets. We have consoles designed for live sound, we have recording consoles, and we've always had our compact, general-purpose mixers designed for a wide number of applications.

In the past ten years, recording and P.A. consoles have gotten more sophisticated, so many of the features needed in recording also work in live sound. Our 8-bus console is designed more for recording, but can also be used for live sound. People find that they love the recording features, and they find applications for live sound. But there are recording features, like the flip switches, and specific buttons and knobs that have to do with tracking, that can get in the way of live sound. A live sound console's got to be, first and foremost, easy and fast to use. You've got to have panel layouts that are easy to understand, you've got to be able to see it in low light. Our new SR Series of [24/32-channel/4-bus] sound reinforcement mixers are designed for front-of-house.

BY MEL LAMBERT

WITHOUT DIGITECH'S VOCALIST, YOUR 5-PART HARMONY MAY SOUND ANIMATED.

STUDIO VOCALIST

Now there's a vocal processor that doesn't make the human voice sound so inhuman. Our Studio Vocalist's patented technology lets you easily create harmonies with human characteristics like random pitch fluctuation, timing imperfections and Gender Bender™. Gender Bender™ allows you to make your background singers sound like a mixed group and not just you. Recording those harmonies won't take multiple passes, either—just lay down a track, then play it back in 2, 3, 4 or 5 part harmony. In a variety of styles. Ideas get from your brain to your ears sooner. And the design is just as human as the sound, with controls, jacks and features suggested by thousands of original DigiTech Vocalist owners. So choose a vocal processor that doesn't sound so processed. Visit a DigiTech dealer today.

- **Natural harmonies and pitch correction**
- **XLR and 1/4" ins and outs; separate outs for each voice**
- **48V phantom power**
- **Intuitive operation**
- **Bright, easy-to-read display**
- **Full frequency response (20 Hz - 20 kHz)**
- **VHM-S and Vocalist II download feature**
- **Keystroke MIDI out for automation**

NEW

Digital I/O for the Studio Vocalist

The SV-I/O card is designed for Studio Vocalist owners who require the sonic purity derived from transferring signals into the digitol domain and keeping them there. It offers AES/EBU & S/PDIF formats with multiple sampling rates and it's easy to install.

WITH THE NEW MIDI VOCALIST, GREAT HARMONIES ARE A SIMPLE TOUCH AWAY.

MIDI VOCALIST

The MIDI Vocalist makes it easier than ever before to achieve soaring vocal harmonies from a single voice. Now even the novice can connect a microphone and MIDI keyboard and be making fuller sounding music right now! All controls have been placed within easy reach so that with the touch of a front panel button, a foot switch or a MIDI controller, arranging vocal accompaniments can be performed when the creative urge strikes.

DigiTech HARMONY PROCESSORS

- **Easier to use than ever before**
- **Vocal arrangements can be created instantly from the front panel**
- **4 harmony voices**
- **Vocoder, Chordal, Scalic, and Detune harmony modes**
- **Front panel buttons transmit MIDI for sequencer control**
- **Choice of line or mic inputs**
- **All parameters accessible via MIDI**
- **Footswitch controllable with optional FS-300**

A Harman International Company

Do you find that the live sound environment is much more hostile for a console? With high RFI levels and more unstable power supplies, does the design have to be different from recording boards?

The environment is more hostile. Number one, the cables get longer, and become tuned to certain RF frequencies, which can cause problems. All of our mixers have RF traps on the input preamp to make them as RF-proof as possible. RF problems [tend to result from] bad cabling or bad grounding. But a recording studio can also be really hostile, with CRT noise, computer radiation and—a major problem in home studios—wall warts. They radiate a tremendous amount of magnetic flux; cables running next to [wall-mounted transformers and DC power supplies] cause all kinds of hum problems.

What do you do to reduce the amount of RFI that gets into your boards?

The major difference we have over most or all of our competitors is that the input jacks are all grounded to a metal plane. You want RF to be stopped at the input. That is the ground plane for the whole console. RF traps at the input drop the RF right into the ground point of the chassis. The circuit board also has grounding, but that's your secondary back-up. Typical consoles [have] plastic jacks that rely on the circuit board for grounding; you can never have as good a ground on a circuit board as you can on a chassis.

At the end of the day, it's audio quality that is important, plus ease of operation—you can't just clutter up the design with features that aren't useful.

And also you use a single-board design approach on your 8-bus boards?

They're semi-modular, with eight channels on a board, daisy-chained together with flexible cables across the output buses and the power rails. That way, we don't have mechanical breakage problems.

Are there any hot IC chips around you're using that maybe the competition isn't?

What we're seeing is more and more manufacturers are using the same parts we're using. The IC we use is a very good audio part, yet you hear about people that ask for extremely high slew rate, and this and that. You have to be careful. There's a certain point where "faster" doesn't buy you anything. As a matter of fact, it can buy you oscillation or RF problems. To design for the best audio quality, the first thing you've got to do is make sure your circuit is stable. If you have a circuit that's sitting there on the edge of oscillation, it sounds very bad. That's why we use the best chips that we can, and their reliability has been phenomenally good. They're very low-noise, and they sound very good.

We do pay a lot of attention to gain structure. We use very low impedance on our buses, we've done that since the beginning. It costs more money and

draws more power from the power supply, but the end result is a more predictable design with better specs, lower noise and lower crosstalk.

Do you optimize bandwidth flat out to maybe 50 to 60 kHz, and then start truncating?

We design all our products to be about 1 dB down at 60 kHz which, admittedly, is a very wide bandwidth. But if you have a number of products in series, maybe an equalizer, a compressor/limiter and a crossover, and each one of these is rolling off 1.0 to 1.5 dB at 20 kHz—which is not untypical—pretty soon the system is going to roll off at 15 kHz or below. And that's audible! We keep the bandwidth as wide as we can. If you start going higher than 60 kHz, you're asking for more RF problems.

What about metering? A lot of people run into problems with headroom on digital multitracks.

A problem we see is people record too hot, which causes several problems. First, there is distortion during the recording process. Second, during playback the level is much too hot going back to the mixer. A good rule of thumb with ADATs, for example, is to view -15 as your 0dB reference point. This gives you 15 dB of headroom, and a low noise floor.

Keep in mind that the type of music may change the way you record. If you're recording live, you need to record *cold*; if you're recording compressed synth patches, you could record somewhat hotter.

Our consoles are designed to be operated very cold because of their exceptionally low-noise performance. This gives extremely high headroom. With some older designed mixers, operating hot was a way to get above the noise floor. But then you have limited headroom. But, in reality, this is a bigger subject than can be summed up in a few paragraphs; it really merits a much bigger article.

Do you have clip indicators at various points throughout the signal path?

We have clip and signal-present indicators on the channel strip of virtually all of our consoles. There are two LEDs: green is -20, and red is overload. The circuit monitors three points in the circuit for our 8-bus console.

What lies in the future? Maybe digitally-controlled consoles?

We're working on fully digital consoles, digitally controlled analog consoles and larger analog consoles.

Let's talk about your company's image in the trade press. You run very busy ads, with lots of technical information. What's the idea there?

Part of the reason I left Tapco was my disgust with how bad the advertising was. People read publications for the ads, as well as the rest of the contents. These ads, in my opinion, should inform and educate as much as possible. That makes our ads dense, but it also gives the readers the information they need. I notice that many of our competitors are also finally realizing that!

We have an entire in-house ad agency, we do all the artwork, write all the copy, and handle film preparation. We also prepare our newsletter in the same way. One of my goals has been to have the best advertising possible, and the only way to do that was to have an in-house agency where we can communicate back and forth, and really get hands-on. Plus, when we started, we couldn't have afforded an outside agency.

You believe that an informed customer is a smarter customer is a loyal customer?

Absolutely.

INSIGHTS

Your firm recently went through a public offering. Are you pleased with the result?

Yes.

You're also accountable to more people than you were before.

Yes, but that's okay. Even though our brochures have always been off-the-cuff—kind of humorous—the business side has always been taken absolutely seriously. From before day one, we had a computer model of our business plan, including projected sales products, gross profit and the rest. We could change model "What Ifs," and see what would happen to the company. We've been very careful, we've worked real hard at it, and were able to grow almost totally from profits, which is pretty unusual. The time to go public is [at a time] when you don't have to do it. Internally, we said that the only way we'd do it is if it didn't destroy our corporate culture. People work very, very hard here, and they care about the company. Everyone's going in the same direction at the same time. A large part of our success—or maybe all of it—is directly due to the people and how focused they've stayed. Being accountable to more people means we've got to have better products than ever.

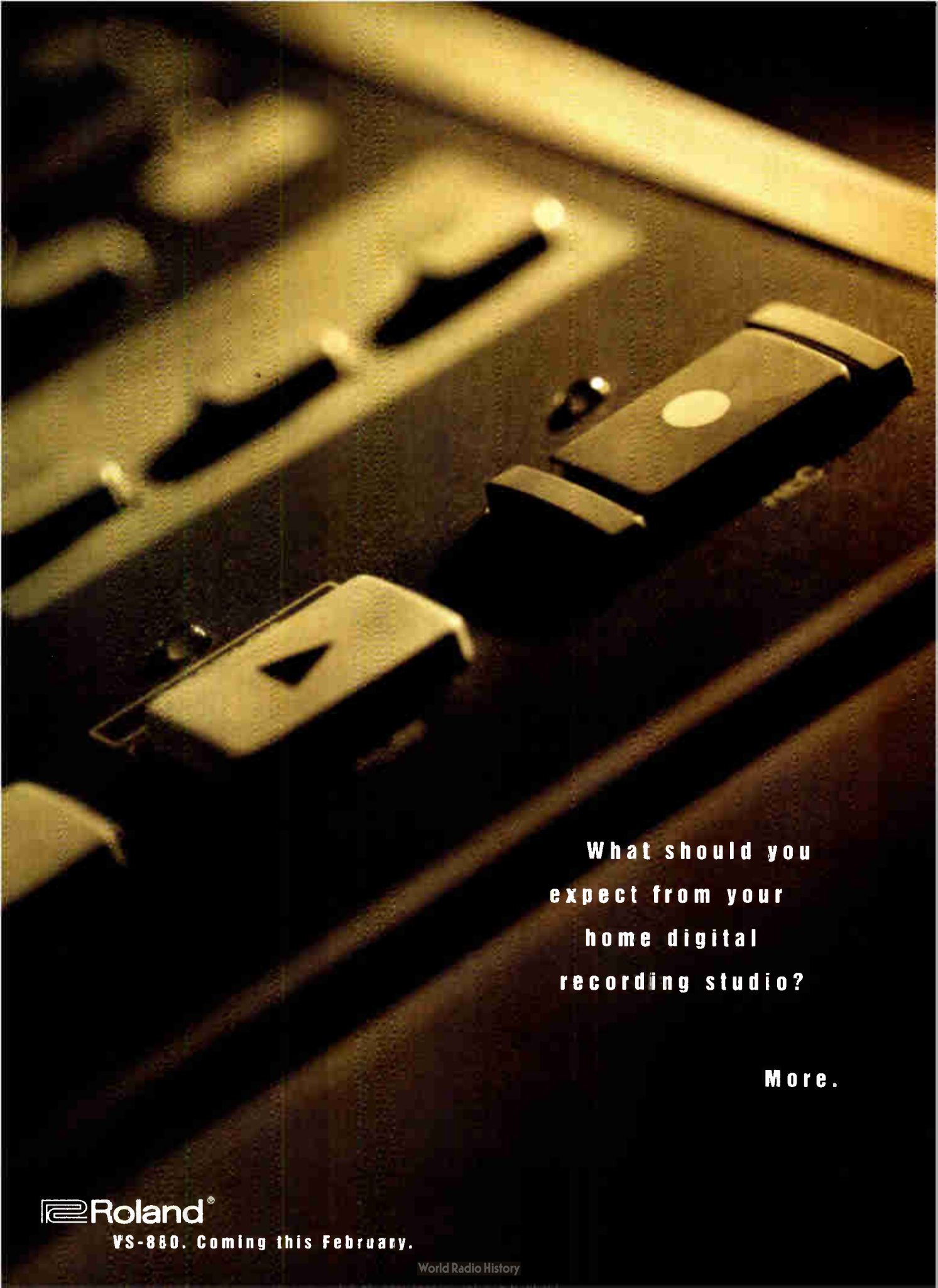
Was your model pretty much on track throughout the last five years?

I'd love to be able to say that we were such good managers that planned to be this size, but we didn't. My first goal was to grow the company to be about the size of Tapco: about $7 million a year (and that was back in 1975). As the company started to grow, we passed that quite abruptly.

What are your yearly sales now?

Last year was close to $50 million. Along with the fast growth, we spent a lot of money on capital equipment. We've got some of the finest automated assembly equipment you can buy. We've spent lots of money on upgrading the manufacturing process so we can make products in America that are of the highest quality, yet at a reasonable price. There's a lot of pride involved with that. For the most part, all of the products that we design and manufacture are ones that I've wanted personally and use in my own home studio. ■

Formerly editor of Recording Engineer-Producer *magazine, Mel Lambert currently heads up Media&Marketing, a consulting service for pro audio firms and facilities.*



In 1991 the Alesis ADAT changed the way you think about recording

Think Again

How do you improve on the most successful professional multitrack tape recorder of all time? Listen to your customers. Do some heavy thinking, and...

Make the transport four times faster and put it under constant software control. Incorporate advanced onboard digital editing with track copy, auto punch, track delay, tape offset, 10-point autolocator, rehearse mode and more. Use the latest oversampling converters for the ultimate in digital audio quality. Design a beautiful vacuum fluorescent display that provides all the critical information. Wrap all this well-thought-out technology in an utterly professional six-pound solid die-cast aluminum chassis. Of course, make it 100% compatible with over 70,000 ADAT's already in use worldwide.

Introducing the new, definitely improved **ADAT-XT™ 8 Track Digital Audio Recorder**. Consider it a think tank for your creativity. See your Alesis dealer. Don't think twice.

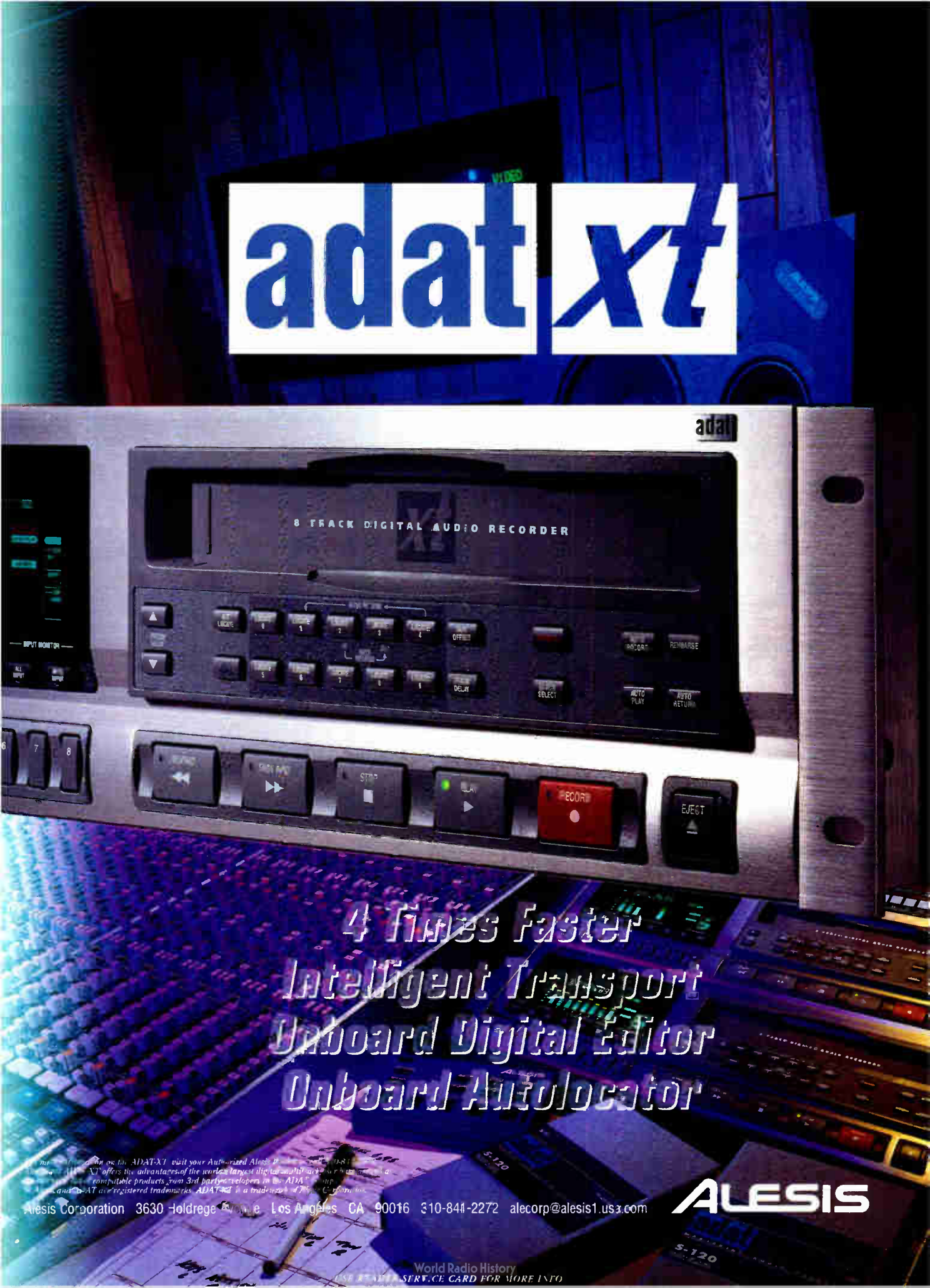


PHOTO: CAROL ROSEGG/JOAN MARCUS

THE STATE OF THE ART In Broadway Sound

BY ERIC RUDOLPH

Full automation has finally come to Broadway. *Victor/Victoria*, the Julie Andrews star vehicle, is the first musical in which all of the 88 faders controlling the orchestra, vocals and effects are cued by computer. Orchestra and effects automation is not new to Broadway musicals, but this is the first time vocals have been automated as well, according to top Broadway sound designers.

In other Broadway sound developments, less expensive consoles are starting to replace the venerable but pricey Cadacs on some cost-conscious musicals, although the Cadac is still king. High-tech sound routing and matrix control systems, more sophisticated EQ applications, more durable and versatile wireless mic transmitters, as well as MiniDisc players, are also making news in Broadway sound departments.

AUTOMATION HELPS THE OPERATOR PERFORM BETTER

Victor/Victoria's two automated Midas consoles are cued by Uptown Automation's Performance automation system, which features moving faders. "Without the complete automation, I don't think we would get as good a mix each night, definitely not as consistent," says the show's sound designer Peter Fitzgerald. "The automation helps the operator perform better," he adds.

Uptown developed the hardware and software in conjunction with Fitzgerald's own company, Sound Designer Studio. "Bernard Fox [Sound Designer Studio's co-owner and R&D manager] and I had been trying to find an automated cueing system that would work in live theater, but we just couldn't get the product, so we had to develop it ourselves," says Fitzgerald. Despite the full automation, Fitzgerald feels that the operator's role is still crucial. "Uptown's moving

faders will set the levels for the vocals, and then we'll manually take it over. I've always felt that the operator should be the key tool, not just a button-pusher."

Victor/Victoria's Uptown Performance automation system runs on the SMPTE timecode clock on a PC platform, and emits both SMPTE and MIDI. "We split the SMPTE clock into two 12-hour segments, one for each of the two acts. Cues are set every three minutes, which is a standard format for musicals," Fitzgerald says. "We use three minutes because that is the longest period that anything goes on in the show without a change. Where cues occur in less than three minutes, the excess time has been edited out of the program. The orchestra is heavily mixed; each song can have as many as a half-dozen changes. Each cue has a three-second window so we can do another cue quickly," he explains.

Fitzgerald says that unless there are substitute musicians in the orchestra pit, the orchestra automation runs with almost no attention from the operator. "With the Uptown automation system, you just touch the fader and it is released from the programmed cue position into manual control until the next cue comes up. I don't know of any other system that allows you to do that on-the-fly," he says.

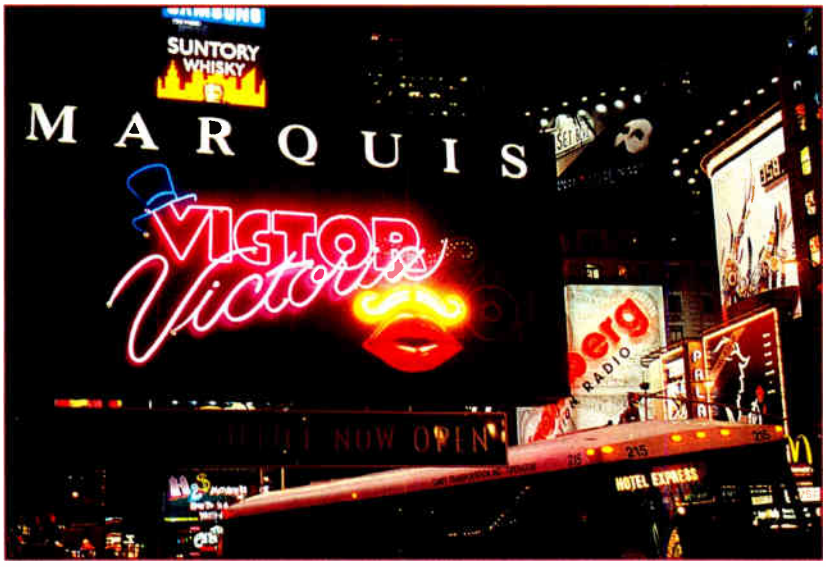


PHOTO: ERIC RUDOLPH

Above: the marquee of The Marquis; preceding page: Julie Andrews surrounded by members of the Victor/Victoria company

TONS OF SOUND EFFECTS

Sound Designer Tony Meola (*Guys and Dolls, Smokey Joe's Cafe* and the upcoming revival of *A Funny Thing Happened on the Way to the Forum*) is another fan of Uptown Automation, but he is not yet comfortable using it to fully automate a musical.

"Uptown is just a marvelous system," he says. "I went into *Moon Over Buffalo* [the comedy staring Carol Burnett] knowing I was going to lose my operator just after opening, which I really don't like, so I decided to have a situation where a button is pushed and the fades happen. In the opening of *Moon Over Buffalo*, there are tons of sound effects with two MiniDisc machines running in stereo along with an Akai sampler, and you just literally push a button and the faders move by themselves and the effects machines trigger. I was initially reluctant to use automation because I didn't want to take something important away from the mixer. And automation is harder to use in a musical because they're just so different every day. However, I'm pretty certain I will be using Uptown's automation on orchestra, effects and vocals for a musical very soon," Meola adds.

AFFORDABLE CONSOLES MAKING INROADS ON BROADWAY

Victor/Victoria uses a Midas XL-3 console for vocals and an XL-200 for the orchestra. "I'd used Midas before, and I liked the way they sounded; they have a nice preamp and EQ section," Fitzgerald explains. "The cost of these Midas boards with the Uptown Automation is probably the same as a Cadac, but I chose to have the automation. The new Cadacs have VCA automation, but that is somewhat limited; with this system, you can automate every single thing, so I feel I got more bang for the buck."

Victor/Victoria is not the only musical to opt for less-expensive sound consoles. More affordable consoles are also making inroads in other Broadway musicals, which until very recently have been dominated by the Cadac.

"Nine out of ten musicals on Broadway use Cadacs," says Meola, who is designing the sound for the new production of *The King and I*, starring Lou Diamond Phillips, with a Crest board fitted with Uptown Automation for orchestra and effects. "I've been using Cadacs for a long time, but they're just so much more expensive than anything else. I've got two Crests on Broadway now, and I'm using another soon. Cadacs are absolutely wonderful consoles; they're without a doubt the quietest boards and have amazing amounts of headroom—you can pretty much do anything and it will never bark back at you. With some of the Japanese consoles, you have to put compression on every channel if you want to get any gain without noise.

"Clive Green, who builds the Cadacs, has Martin Levan's ear [Levan designs the sound for the musicals of Andrew Lloyd Webber], and Levan has designed most of the Cadacs over the past few years," Meola continues. "I don't have the advantage of doing a Lloyd Webber show every time out. Levan pretty much knows his shows are going to run forever, so they can afford to use a $300,000 Cadac console." Fitzgerald notes that instead of buying a Cadac, "We spent a lot of money on wireless mics, using the new Sennheiser 1046 systems, and we spent a lot on Neumanns for the pit."

THIRTY-TWO WIRELESS MICS

The *Victor/Victoria* orchestra is miked as follows:

PHOTO: JOAN MARCUS

L to R: David Loud, Zoe Caldwell and Karen Kay Cody in Terrence McNally's new play Master Class

LOOKING IN ON "MASTER CLASS"

BY MARK FRINK

Three-time Tony Award winner Zoe Caldwell returned to Broadway this winter in the role of opera great Maria Callas. Written by playwright Terrence McNally (who won the 1993 Tony Award for *Kiss of the Spider-woman*), *Master Class* is based on a series of classes given by Callas in the '60s and explores the great diva's tempestuous nature and passionate heart.

Sound design for *Master Class* is by Jon Gottlieb Sound Design of North Hollywood, Calif. Gottlieb is the resident sound designer at the Mark Taper Forum and is regularly involved with productions at the Ahmanson Theater, both in Los Angeles. Assistant designer is Marc Salzberg; Bernie Brannigan is the operator. Equipment is provided by Masque Sound, whose main shop and offices are located just across the river in northern New Jersey. Masque also has a sound-effects recording studio in the Film Center Building on 9th Avenue at 45th, where designers can build a show's effects and record them in various formats. Masque also provides same-day equipment servicing for Manhattan clients from the 9th Avenue location.

Master Class is staged at the John Golden Theatre, on West 45th Street, a well-maintained, intimate theater with a capacity of 805—468 on the orchestra level, and 337 in the mezzanine and balcony. Built in 1927, the theater is owned by the Schubert organization and is most famous for the acclaimed run of *Waiting for Godot*. The main speaker system for *Master Class* comprises four Apogee AE-5s at the proscenium edges and two each at the orchestra and balcony levels, with six and ten milliseconds of delay respectively. "I like to use Apogee speakers because they are acoustically well-matched and need very little equalization," Gottlieb comments. Nineteen small Apogee SSM speakers are used throughout the theater. The SSM has two 4.5-inch drivers and a 1-inch fluid-cooled dome tweeter situated between the woofers. Four SSMs are used as under-balcony fills, with 24 ms of delay.

The sound design uses a surround approach that immerses the audience in the ambience of the play. At the sides of the orchestra and balcony, ten more SSMs are used as part of the surround system, with about 30 ms of delay. At the rear of the theater, five Apogee AE-2 enclosures are used to fill out the surround system from behind the patrons. Normally used as under-balcony speakers, these five-sided enclosures have a split front baffle for wide-angle coverage, with an 8-inch cone driver and a 1-inch horn on each side. Most seats are covered with at least four distinct speaker systems. Two additional AE-2s are used to focus sound down at the front mezzanine, and four more SSMs are used for front fills. Lastly, another SSM is also used as a program monitor pointed toward the piano onstage. Delays are Klark-Teknik DN 716s; Apogee CRQ-12 stereo parametrics are used for equalizers.

Five Crown GLM-200 foot mics are mounted flush with the stage across the front edge, with a channel of parametric equalization inserted into their group. "These mics were chosen for their low profile and great sound," Gottlieb explains. "I've used them with success in a variety of applications." Caldwell wears a Sennheiser UHF body-pack with an MKE 2 'Red-dot' mic, which has a built-in pad. A 6-millisecond delay is inserted to make it sync with the foot mics and work better in the surround system.

Playback is from two 360 Systems Digicart II hard disk recording systems. Tape recordings of the original master classes were re-created using Digidesign Pro Tools III Sound Designer and DINR noise reduction. Callas' vocals from professionally recorded performances were substituted for the original archival recordings of the classes and re-Foleyed with audience applause and responses, replacing the original, while staying true to its content. As she puts young, aspiring opera singers through their paces, Caldwell reveals Callas' unique genius for dramatic interpretation. The audience gains insight into the complex motivations and personality that drove this performer. Opening to universally positive reviews, *Master Class* seems a good candidate for a long and successful run. ■

Freedom, Around The World

No matter where you are on earth, or what you do, there is one thing you can count on: Sennheiser Wireless. It delivers the most natural and transparent sound ever transmitted. Phase-locked loop (PLL) frequency synthesis provides frequency agility and stability, so that you can easily adjust your equipment to local RF conditions. Advanced transmitter battery management systems even allow remote status indication. And, our HiDyn*plus* noise reduction system yields tremendous signal-to-noise ratios. Only Sennheiser offers real-time computer monitoring and remote control of all receiver functions. Only Sennheiser provides service facilities worldwide. Free yourself with confidence. Count on Sennheiser.

RF Wireless Systems

SENNHEISER®

SENNHEISER ELECTRONIC CORPORATION
6 VISTA DRIVE, P.O. BOX 987, OLD LYME, CT 06371 • TEL: 203-434-9190 FAX: 203-434-1759
CALIFORNIA: 5116 WEST MAGNOLIA BLVD., SUITE 100 BURBANK, CA 91505 • TEL: 818-845-7366 FAX: 818-845-7140
MEXICO: PALENQUE NO. 663, COL. NARVARTE, 03600 MEXICO D.F. MEXICO • TEL: (5)-605-7686 FAX: (5)-605-6473
CANADA: 221 LABROSSE AVE., PTE-CLAIRE, PQ H9R 1A3 • TEL: 514-426-3013 FAX: 514-426-3953
Manufacturing Plant: Am Labor 1, 30900 Wedemark, Germany

24x4x2...SWEPT MIDS...PFL/AFL...6 AUX NOW SHIPPING: MACKIE'S SR24•4, THE

GREG MACKIE DID IT AGAIN... The new 4-bus SR24•4 is the first live sound console with the high headroom, low noise and superb sound quality that have established our 8•Bus console series as an industry standard.

That's because the SR24•4 is a direct descendent of the 8•Bus and is equipped with many of the same features, components and circuitry.

Through economies of materials and manufacturing processes, we're able to offer the SR24•4 at an astonishingly low price.

Call us toll-free for full information. Better yet, visit your nearest Mackie dealer. The SR24•4 is in stock right now.

VLZ (Very Low Impedance) circuit design developed for our 8•Bus consoles reduces noise and crosstalk at critical points in the SR24•4's signal path.

CHANNELS 1-20 are mono with 3-band EQ. 1/4" TRS balanced line inputs and Mackie's renowned, high-headroom, low-noise mic preamps.

SWEEPABLE MID EQ from 100Hz to 8kHz. 1.5 times wider bandwidth than other consoles for more musical equalization. 15dB boost/cut.

-20 SIGNAL PRESENT LED on every channel.

80Hz LO SHELVING EQ. Even at ±15dB, it doesn't interfere with mid EQ the way many shelf EQs do.

New-design **60MM FADERS** with the same precision, log-taper as our 8•Bus consoles give you more useful control range than cheaper, D-taper faders. SR24•4 faders use a recently-developed, long-wearing wiper contact material first employed in sophisticated automotive sensors. You'll get longer fader life and improved resistance to solid and liquid contaminants that inevitably get into live sound boards.

SOLO/MUTE LED on every channel (plus our mondo master rude solo LED over in the master section).

HI SHELVING EQ with 15dB boost/cut at 12kHz. Designed with the same circuitry as our 8•Bus Hi EQ, it won't interfere with mid EQ.

LOW CUT FILTER with 18dB/octave roll-off at 75Hz just like on our 8•Bus console. Gets rid of room rumble, wind noise and mic thumps — which can save amp power, too. Also allows you to safely use Lo EQ on vocals — the audible bass range is boosted but the unwanted frequencies below 75Hz (like microphone handling noise) are chopped off. Also very useful for miking during studio recording.

Mackie's renowned ultra-high headroom **MIC PREAMPS** on Channels 1 through 20. -129.5 dBm E.I.N., ultra-wide bandwidth and 0.005% distortion. The same Mackie mic preamps top artists and groups are using to track their current albums.

Not shown but definitely there: The usual Mackie **INTERNAL FEATURES** like impact resistant, double-thru-hole-plated fiberglass circuit boards, sealed rotary controls, gold-plated interconnects, RFI rejection, electronic protection and ultra-high headroom mix amp architecture.

INSERTS on every mono channel and subs as well as main L/R outputs.

The **MOST COMPACT 24-CHANNEL** live sound console ever!

At 30.75" wide, the SR24•4 takes up less space than most 16-channel live sound boards, yet its controls are still spaced so that they're easy to use.

SENDS...8-BUS SOUND QUALITY...$1599* MSRP. BEST LIVE SOUND CONSOLE VALUE EVER!

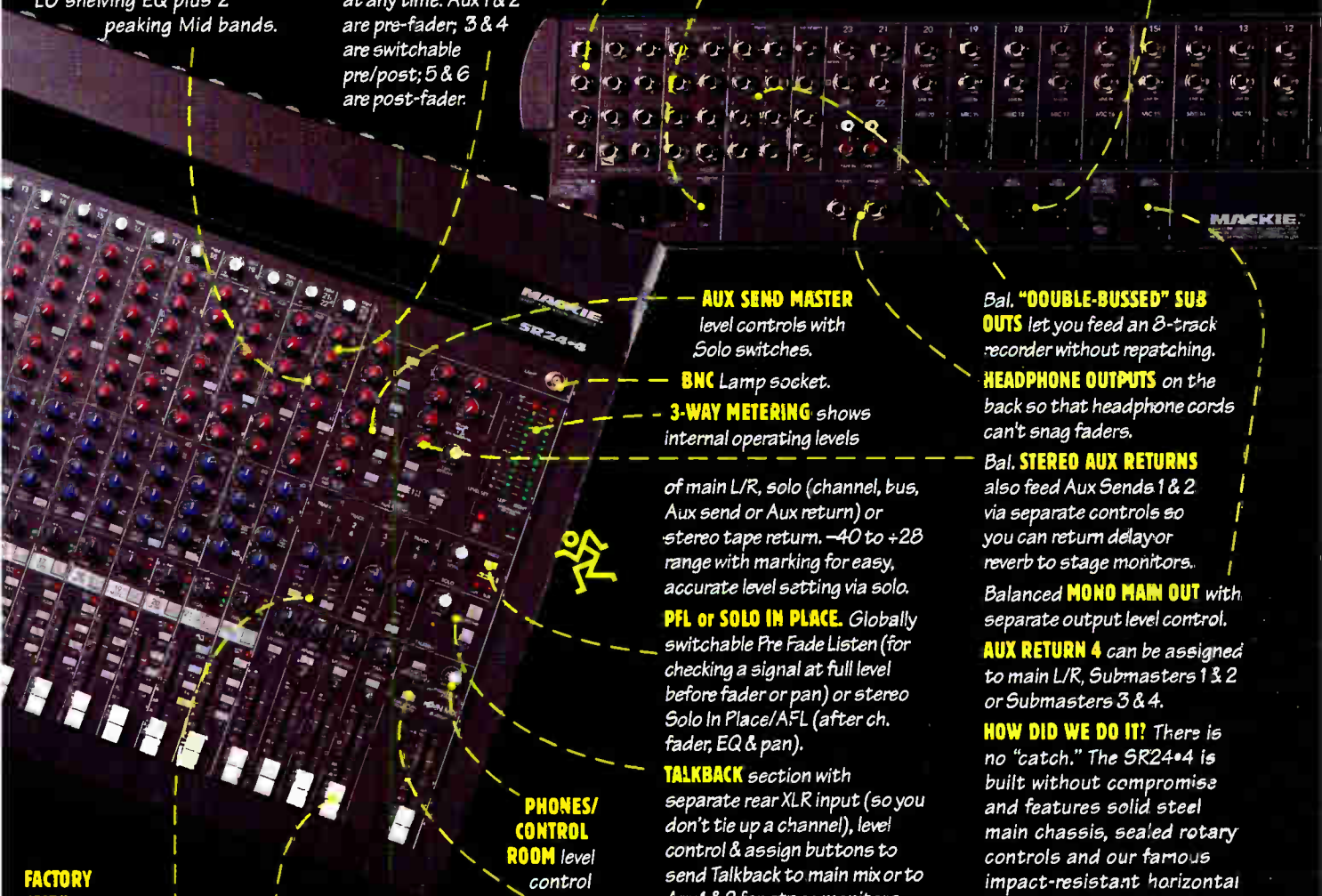
CHANNELS 21-24 are stereo line input channels with Hi & LO shelving EQ plus 2 peaking Mid bands.

6 MONO AUX SENDS per channel, ALL accessible at any time. Aux 1 & 2 are pre-fader; 3 & 4 are switchable pre/post; 5 & 6 are post-fader.

Balanced 1/4" **TRS OUTPUTS.**

PHANTOM POWER switch.

Balanced **XLR MAIN OUTPUTS** with +28dB capability.



AUX SEND MASTER level controls with Solo switches.

BNC Lamp socket.

3-WAY METERING shows internal operating levels of main L/R, solo (channel, bus, Aux send or Aux return) or stereo tape return. –40 to +28 range with marking for easy, accurate level setting via solo.

Bal. **"DOUBLE-BUSSED" SUB OUTS** let you feed an 8-track recorder without repatching.

HEADPHONE OUTPUTS on the back so that headphone cords can't snag faders.

Bal. **STEREO AUX RETURNS** also feed Aux Sends 1 & 2 via separate controls so you can return delay or reverb to stage monitors.

Balanced **MONO MAIN OUT** with separate output level control.

AUX RETURN 4 can be assigned to main L/R, Submasters 1 & 2 or Submasters 3 & 4.

PFL or SOLO IN PLACE. Globally switchable Pre Fade Listen (for checking a signal at full level before fader or pan) or stereo Solo In Place/AFL (after ch. fader, EQ & pan).

TALKBACK section with separate rear XLR input (so you don't tie up a channel), level control & assign buttons to send Talkback to main mix or to Aux 1 & 2 for stage monitors.

TAPE RETURN TO MAIN MIX not only routes Tape Returns to Main L/R outputs but also disables all other inputs to the mains. This feature enables you to play a tape or compact disc during intermission without losing channel and submaster settings.

BALANCED INPUTS & OUTPUTS. Important, but really hard to point to with a yellow arrow.

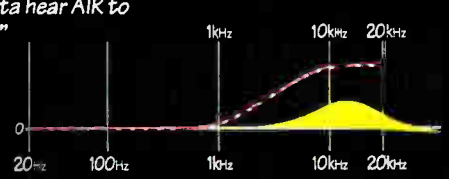
HOW DID WE DO IT? There is no "catch." The SR24•4 is built without compromise and features solid steel main chassis, sealed rotary controls and our famous impact-resistant horizontal circuit board design. We've drop-tested, drop-kicked and "beta-tested" the SR24•4 with local grunge-thrash bands for months before release. This is one tough mixer.

***THE USUAL FINE PRINT.** Price is U.S. Suggested Retail only. Slightly higher in Canada.

PHONES/ CONTROL ROOM level control drives two stereo Phone outputs and Control Room output on rear panel. Switch can route stereo Tape Return to Phones/Control Room for monitoring 2-track recording.

SUBMASTER FADERS have Pan controls, L/R Assign & Solo switches.

FACTORY "AIR" on each submaster! A unique peaking equalization circuit for enhancing guitars, vocals, drums — and sound reinforcement speaker systems themselves. Centered at 16K, AIR applies a gentle boost to the extreme high end without affecting lower treble octaves like Hi shelving EQ does (red line). You've gotta hear AIR to believe the "hi fi" effect it has on PA systems, with horns and compression drivers.



MACKIE™

16220 Wood-Red Road NE • Woodinville • WA • 98072 800/898-3211 206/487-4337
mackie.com • Outside the US. 206/487-4333 • Represented in Canada by S.F. Marketing 800/363-8855

Just what is it that makes Beta microphones the world's most respected for live performance? Ask a professional performer and you'll hear about Beta's remarkable response to vocals *and* instruments. While an engineer will talk about their tight, uniform supercardioid pick-up patterns which allow exceptional gain-before-feedback. And how Beta's technical precision turns every live performance into a studio-quality sound experience.

Is It Art Or Engineering?

The Premium Performance Shure Beta Microphone Family

If you're miking an entire stage, you'll want the full Shure Beta Line. It includes the improved Beta 57A and 58A with smoother response and lower handling noise. The premier Beta 87 brings accuracy and detail to vocals. And to drive it all home, complete your stage with the exciting new Beta 52 for your kick drum and the unique Beta 56 for drums and other instruments.

Is it art or engineering? With Shure Beta, it's one and the same.

Call 1-800-25-SHURE for the Shure Beta dealer nearest you.

SHURE®

THE SOUND OF PROFESSIONALS...WORLDWIDE

USE READER SERVICE CARD FOR MORE INFO

The sound system rental cost for *A Chorus Line* was $650 a week; there are musicals now on Broadway that are spending $13,000 a week.

—Otts Munderloh

Neumann KM140s on the strings, Neumann RA27s on the horns, AKG 391s and Shure 57s on the reeds, AKG 391s on the flute and piccolo, EV 408 swivel heads on the drums and an AKG 391 on the accordion. The show also uses 32 wireless mics (one for each cast member), eight Vegas and 23 of the new 16-frequency Sennheiser SK-50s. However, one petite female cast member who wears her mic and transmitter in a wig, cannot wear the bigger SK-50 and so is using one of the older, smaller Sennheiser 2012s. The bigger size of the 1046's three-battery transmitter has not caused the *Victor/Victoria* team any other significant problems with concealment so far.

The new Sennheisers did cause some problems during *Victor/Victoria*'s out-of-town run, but it was not due to their larger size. One of the units' three AA batteries had a habit of slipping loose, thereby completely shutting off the unit. "It happened three times in Chicago, so now anyone who has a solo gets a second 'traveling' mic put on them just before their song; it is taken off after the solo is over. They had the same problem on *Showboat*, which I've heard uses something like 40 wireless mics," Fitzgerald says. The *Victor/Victoria* sound team worked with Sennheiser on the battery housings, and the problem has not recurred. "Sennheiser tells me you can access the 16 frequencies available on the SK-50s by computer and change them in midshow," says Fitzgerald, shaking his head. "That would be just another thing to worry about; I like to keep things simple."

HATS OFF TO MIDI CONTROL

Victor/Victoria star Julie Andrews wears two Sennheiser SK-50 wireless mic systems (to prevent loss of her vocals due to a transmitter failure), with the mics themselves hidden in her hair. She also has her own dedicated Klark-Teknik digital EQ unit. "She wears a lot of hats in the show, as do many of the cast members, and they're constantly taking them off and putting them back on. The hats have such an impact on the microphone when it is placed near the forehead that we need a powerful EQ adjustment to make it sound the same with the hat on or off. Julie takes the hats off at almost exactly the same time each night, and when she does, we hit a cue and the faders may or may not move, but the EQ changes automatically by MIDI control, to a different MIDI

subchannel that is equalized for her hat being on or off," Fitzgerald explains.

"Those kind of on-the-fly EQ changes are something we could never do before MIDI, without a second operator back at the console changing the connections; how do you change an equalizer during a show? Once you change it, where was it before? You get lost. We want to make things repeatable. People who buy theater tickets want to see the same thing or better than the previous night's audience saw," says Fitzgerald. EQ changes for the rest of the cast are also MIDI-triggered and run through the Midas console's built-in EQ.

REVERB ENLIVENS DEAD ACOUSTIC

Fitzgerald uses Lexicon 300 and LXP-15 digital effects systems for reverb, which is used heavily due to the sound characteristics of the Marquis Theater, which opened in 1986. "The theater is dead acoustically," he says. "It has no acoustic personality of its own. We came here from the Schubert in Chicago, which is an old house and much livelier acoustically. It was quite a change coming to the Marquis. I had to go in hard; I'm using much more reverb, and the sound is running two to three dBs louder than out of town. The apparent sound level is the same; the only problem is the higher volume makes us more exposed to mistakes."

Being a modern theater, the Marquis was designed with built-in speakers. "The *Victor/Victoria* sets were designed so that the built-in speakers at each side of the stage are covered by scenery and therefore unusable; I had to move my main front speakers farther out into the house than I would have liked," Fitzgerald says. "This meant I had to manipulate the time delays to compensate for their location." The speakers have been adjusted so that the sound appears to be coming from about 18 feet back from the lip of the stage. "Most of the action in this show takes place pretty far back on the stage, so that sound image placement made sense to us," Fitzgerald explains. The time delay systems Fitzgerald specified are Brooks Siren BSS TC804s, and each house channel also has Klark-Teknik DM 410 parametric EQ. Fitzgerald used the Meyer SIM (Source Independent Measurement) system to analyze house EQ, and was quite pleased with the results.

Victor/Victoria uses the new Electro-Voice Deltamax speaker system, which Fitzgerald says has worked very well. The center orchestra has one EV 1152 aimed down at the center and two 1152s on each side. Front fill is handled by 12 paired EV S40s mounted right above the pit. Two EV 1122s are used to augment the first six rows, and two are placed on the sides, about 20 feet back from the stage. The balcony has three 1152s situated center, left and right. Under the balcony in the orchestra are ten S-40s. The house system speakers that are not covered by scenery are used sparingly. There are also eight EV Century 100s for surround. In all, a total of 14 house channels plus a surround channel are sent out from the console.

Vocal monitoring is limited, as in most Broadway shows. Only Julie Andrews has full vocal and orchestral monitoring, via three EV 1122s. Additionally, two EV horns and two S-40s are bolted together at each side of the stage and take Julie Andrews' mix. There are 12 S-40s onstage for effects and four more are positioned for actors to hear musical cues when they are offstage. Amplification for all house and

PHOTO: ERIC RUDOLPH

Peter Fitzgerald, Victor/Victoria's sound designer

monitor speakers is provided by the EV Dynacord system.

Fitzgerald uses compression only on the bass. "I don't like compression; it's an overused tool," he says. "I only used it because I couldn't get the acoustic bass loud enough during loud orchestral passages." The compressor is a Brooks Siren DPR 402. Sound effects are triggered manually by an operator using two electronic keyboards to control an Akai sampler, which is also used for routing sound throughout the speaker system.

Tony Meola prefers MiniDiscs for effects and has been using nothing else, except samplers, for effects for more than a year. "You can edit with MiniDiscs and switch the order of cues; they're just great," he says. On other equipment issues, he says he is hopeful that the new Sennheiser wireless mic system's much-touted resistance to moisture will make up for its increased size. Meola also thinks that the Meyer SIM system is "the best. They've simplified it so now more people, like myself, are able to become qualified as operators."

MATRIX SYSTEM AUTOMATICALLY ROUTES 24 MICS TO FIVE FADERS

Also getting rave reviews on the Great White Way is the new audio control system manufactured by Level Control Systems. "The LCS system is to the sound man what an electronic dimming board is to a lighting person," says sound designer Otts Munderloh (*Crazy for You, Jelly's Last Jam* and *Passion*). "LCS starts the playback machines, routes and swirls the sound through the theater. The only problem is that it takes a lot of production time to program the system."

The LCS system uses a "spacemap" to describe the physical location of the speaker system. Once the speaker positions have been plotted onscreen, movements can be designed using a mouse. Up to eight movements can be programmed to run simultaneously.

Movements can also be run live, says Steve Ellison, a principal of Level Control Systems, which manufactures the system. The LCS system is modular and can be configured from eight inputs and four outputs to 64 inputs with eight buses and 64 outputs. It requires a minimum of a 68040 Macintosh platform with at least 16 megabytes of RAM.

"LCS makes it easy to automate the matrix, which is often just set and left. With LCS it is easy to move sound around the theater or to fade sound from one set of speakers to another. And once you've used the system, it gets easier and faster to use," Ellison says.

The LCS system is also used to automate level cues through outboard VCA automation, and works well with any console, Ellison adds. *Starlight Express*, the futuristic Broadway roller-skating show, which is now a fixture in Las Vegas, uses the LCS system to automate cues for its 24 wireless mics. "The performers are skating all over the stage, and it gets very difficult to keep track of the mics. Using LCS, the operator needs only five faders for those 24 mics, which the LCS sets into various groups. *Starlight* also uses LCS to automate the matrix," says Ellison. Ellison added that the LCS system does not yet do EQ, so most productions patch their direct outs from the console into the LC-16 console unit.

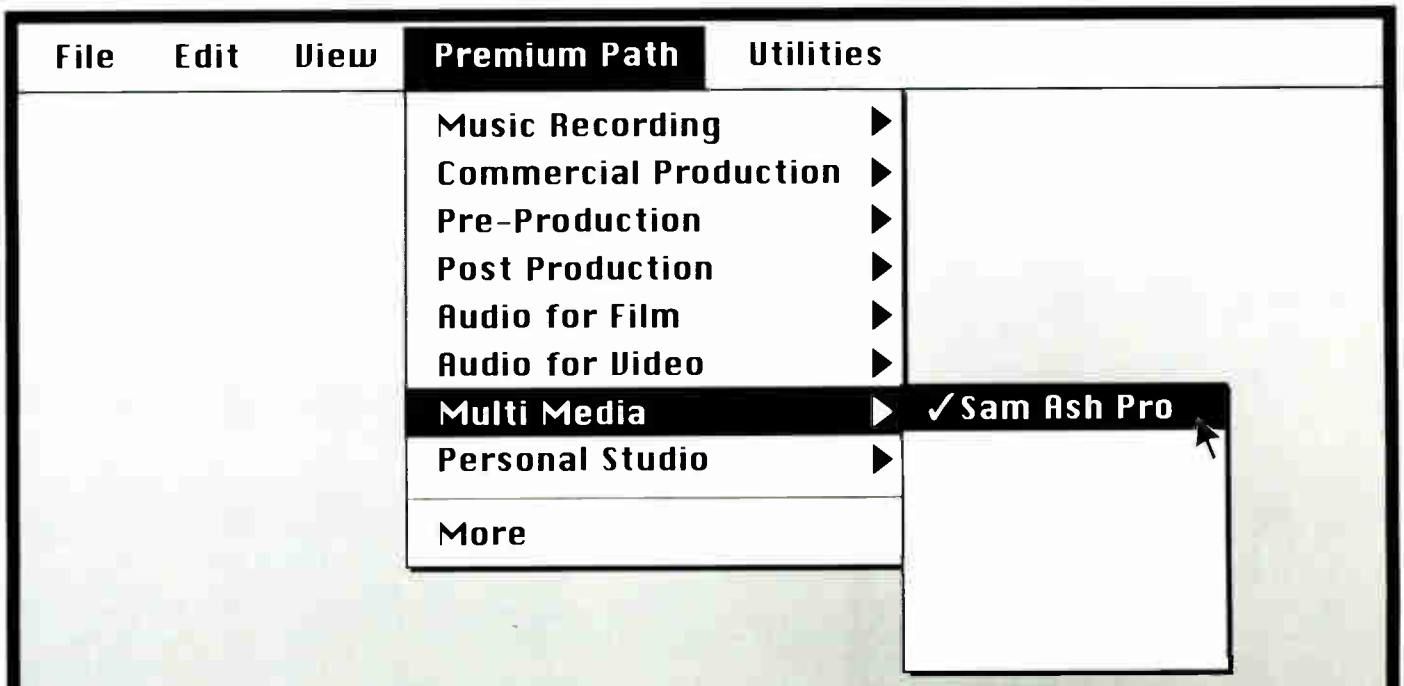
"BETTER SOUND DEPENDS ON THE DIRECTOR"

All of this new technology on Broadway costs a lot of money, however. "In 1975, the sound system rental cost for *A Chorus Line* was $650 a week; there are musicals now on Broadway that are spending $13,000 a week on sound gear alone," says Munderloh. "It's not even that the sound components are that much different now, it's still all about the desk and the amplifiers and the cable, and they're all still more or less the same; everything just costs several times what it did ten and 20 years ago." (Fitzgerald says that the weekly sound equipment budget for *Victor/Victoria* is "well under $10,000.")

Still, many critics complain loudly about overuse of microphones and amplification on Broadway, and gripe that higher sound budgets do not always mean better sound. Munderloh responds, "It really depends on the director. *Sunset Boulevard*, which is one of the more amplified high-tech sound shows, has inspiringly great sound; it is unbelievably clean. Problems arise with sound on Broadway because it is so rare to be able to get the director to take sound seriously. To make amplified sound appear to be natural in a Broadway show, the speakers need to be as close to the performers as possible. If the set designer, who is farther up on the food chain than the sound designer, doesn't want to design the sets with speaker placement in mind, then it doesn't happen."

Tony Meola concurs. "The best place for a speaker in a Broadway theater is on the chest of the performer," he says. "Also, if an actor can project to the sixth row, we can balance the amplified sound with their natural sound and so it appears to be coming from the actor's mouth. It's up to the director to encourage the actors to project. And good sound is up to the director and the orchestration, as well, in that if they keep the band down under the lyrics and do not have the actors dancing for 64 bars right before singing, then we have a much better chance to produce sound that appears to be natural."

Munderloh concludes, "I believe that one of the main attributes that theater has over the movies is that it is live. If the audience does not get some experience that it's live, I feel they're being cheated. We do our best to convince them that what they're hearing is live theater, not artificial." ■



Premium Path

Premium Path means finding the best solutions for your specific needs whether music recording, audio for video, pre-production, multi-media, or any audio application.

Engineers are always looking for the right tools. A dealer with a catalog of equipment is one thing but knowing the equipment and how that equipment best applies to your business is another.

Sam Ash Professional provides the right combination of superior hardware and intelligent design to find the premium path to your production objectives.

Sam Ash PROFESSIONAL

723 Seventh Avenue • Third Floor • NYC 10019 Phone: 212 • 719 • 2640 Fax: 212 • 302 • 4289

Akai • Amek • Apogee • Apple • Behringer • Cedar • Crown Studio [illegible] • Eventide
Focusrite • Genelec • KRK • Kodak • Lexicon • Manley • Millennia Media • [illegible] • Sonic Solutions
Soundscape • Soundtracs • Spectral • Summit Audio • TC Electronic • [illegible]

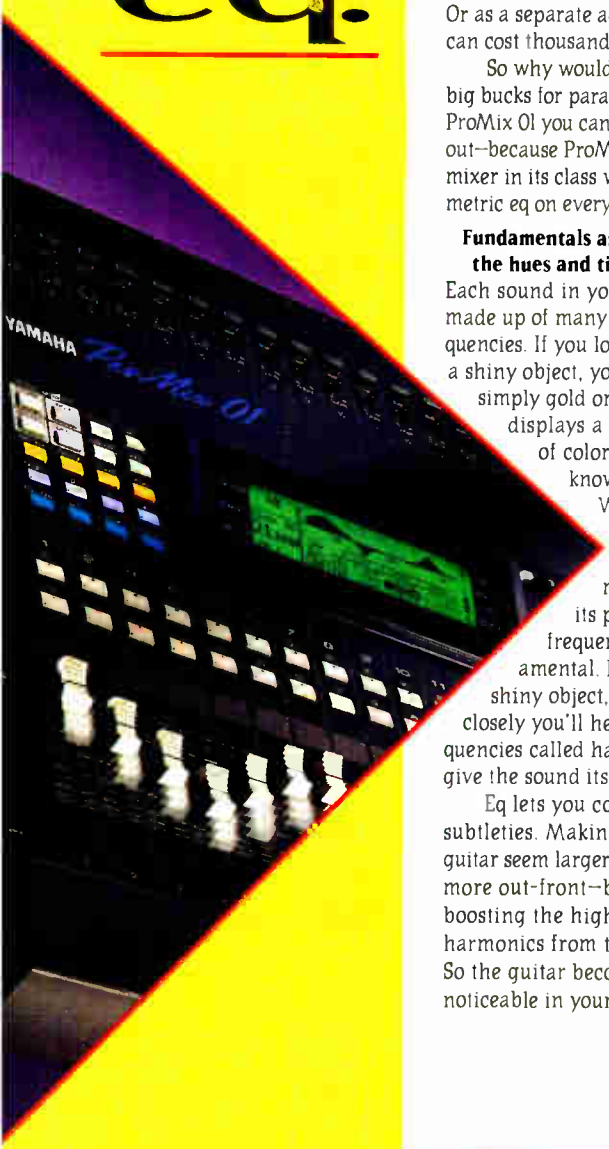
Among many other professional audio products, [illegible]

YAMAHA 20 BIT TECHNOLOGY

ProMix 01 parametric eq gives you dozens of frequency centers in three overlapping bands, from a very low 32 Hz to a sparkling 18 kHz. Q is adjustable in 1/6th octave steps with low and high frequency shelf. A graphic LCD display shows the details of every move you make

Call the 800 number below for your free ProMix 01 Video and Application Guide

ProMix 01™ AND THE SUBTLE ART OF eq.



Mixing is something like painting. Whether it's for a live audience or in the studio, equalization, or eq, is like the "palette and brushes" that let you adjust the shade and tint of each sound in your mix.

In the eq world, true parametric eq is the most precise of all. But it can be very expensive. It's normally available only as an integral part of a large console. Or as a separate add-on unit that can cost thousands.

So why would someone pay big bucks for parametric eq? With ProMix 01 you can afford to find out—because ProMix 01 is the only mixer in its class with true parametric eq on every input channel.

Fundamentals and harmonics: the hues and tints of music.

Each sound in your mix is made up of many "colors" or frequencies. If you look closely at a shiny object, you notice it's not simply gold or silver—it displays a complex array of colors that let you know it's reflective. When you listen to a sound by itself, you mostly hear its predominant frequency—the fundamental. But like the shiny object, if you listen closely you'll hear subtle frequencies called harmonics that give the sound its character.

Eq lets you control these subtleties. Making an acoustic guitar seem larger than life—more out-front—by simply boosting the high-frequency harmonics from the strings. So the guitar becomes more noticeable in your mix, without actually raising its volume.

You can also use eq to solve problems in a mix. Such as removing feedback in a live concert; removing hum or noise from an electric instrument; or taking the "edge" off an instrument that's stealing attention from a lead vocal. With eq, you can make sounds stand out or blend in. In short, it's the accent that can turn a group of sounds into a great mix.

A different shade of blue?

Most equalizers give you a pre-determined choice of two or three frequency locations at which you can boost or cut. That can be really limiting—like having only two or three colors to paint with. You'll quickly discover this when you want to add presence to your vocal track, solve a feedback problem, or remove electronic "hum," and need frequencies that fixed-band equalizers don't provide. Parametric eq, as provided by ProMix 01, gives you a spectrum of frequency choices. Like having all the colors of a color wheel available to paint with.

What size brush?

In addition to frequency and gain controls, the true parametric eq on ProMix 01 includes a Quality Factor or "Q" control. Going back to our painting analogy, Q is like the width of your paintbrush. It lets you determine how wide or fine an effect you want the eq to have. Unlike the pseudo-parametric or "sweep" eq some mixers provide, true parametric eq lets you boost and cut subtleties in your mix with the precision of a Renaissance artist.

The ProMix "Paint Box."

Now that you know why parametric eq is so highly regarded, just imagine applying that artistic freedom to your next project. What could you do with more colors and more control over them? With 3-band parametric eq on every channel and the main stereo output, ProMix 01 gives you dozens of frequency centers to choose from. It's like enhancing your mix with a paintbox that includes every color in the rainbow.

A memory for the details.

ProMix 01 also saves you time by remembering all your eq settings in memory. So once you've found that magic eq curve, you can instantly call it up weeks later, along with all the other settings in your mix. ProMix 01 even includes a built-in eq library which holds 30 time-tested eq curves for you to use. You can call these up as starting points, modify them according to taste, and store your own custom settings in the library for use at any time. The large, backlit LCD display gives you visual as well as precise numeric representation of your eq on each channel—making eq'ing with ProMix 01 an illuminating experience indeed.

We could go on and on about ProMix 01's other advantages. But that's another ad. In the meantime, get the book and see the movie. **Just call 1-800-937-7171, ext. 550** for your free copy of the new ProMix 01 Application Guide and Video. Then take a spin at the dealer nearest you, and see how ProMix 01's parametric eq handles the curves.

ProMix 01 gives you three bands of true parametric eq. As well as a library of 30 time-tested eq curves, plus room for 20 more custom curves of your own

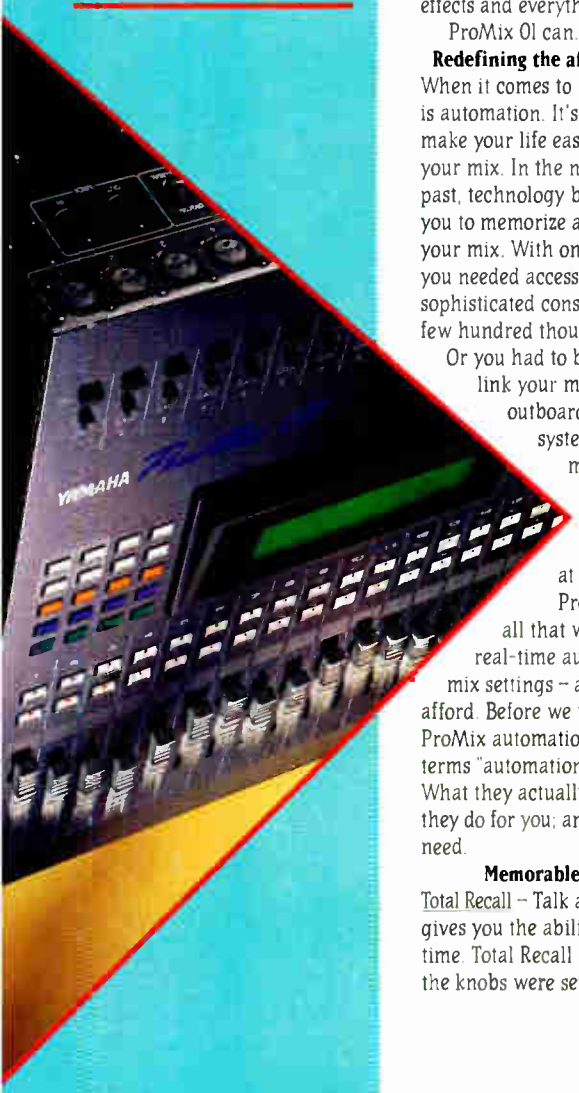
Ext. 550
1-800-937-7171

YAMAHA®
Smart Mixing

ProMix 01™

AND THE MEMORABLE ADVANTAGES OF

auto-ma-tion.



A library of pre-programmed eq curves, dynamic settings and effect presets lets you work faster and more efficiently by drawing on the experience of mixing professionals.

YAMAHA 20 BIT TECHNOLOGY

Call the 800 number below for your free ProMix 01 Video and Application Guide.

Remember that great live gig last month? You know – the one where the mix was perfect. Every instrument eq'd just right. The punchy dynamics and tasteful effects.

ProMix 01 does.

Or how about that jingle you cut last year? What happens when the client calls and wants to change the voice-over. Can you precisely recall and reset the entire mix? Levels, eq, panning, compressors, effects and everything else?

ProMix 01 can.

Redefining the affordable mixer.

When it comes to mixing, the buzz is automation. It's designed to make your life easier and improve your mix. In the not-so-distant past, technology began allowing you to memorize and automate your mix. With only one catch: you needed access to a really sophisticated console costing a few hundred thousand dollars!

Or you had to be willing to link your mixer to a pricey outboard automation system that still left many functions under manual control.

Limited options at best.

ProMix 01 changes all that with memory and real-time automation of all mix settings – at a price you can afford. Before we tell you about ProMix automation, let's define the terms "automation" and "memory." What they actually mean; what they do for you; and what *you* really need.

Memorable moments.

Total Recall – Talk about buzz. This gives you the ability to go back in time. Total Recall tells you where the knobs were set on your mixer at a given moment in time. But you still have to manually reset most knobs and functions to a list of displayed values. Very time-consuming if you consider eq, pan pots and aux sends. And this still doesn't take into account your outboard processing like gates, compressors, effects and routing.

Total Reset – While Total Recall tells you where the controls were, Total Reset automatically returns the controls to the memorized positions for you. Very fast, very cool, and (until ProMix 01) very expensive.

New levels of automation.

Fader and Mute Automation – These are the standard automated functions. They allow hands-free real-time control over channel volume and/or channel on and off status. But remember – there's more to life than faders and mutes. What about eq, effects, dynamics and routing?

Onboard or External Automation – Where does the actual automation occur? Does the audio stay cleanly inside the console, or do you have to patch into an external automation box? And do those extra boxes and cables have an adverse effect on your sound?

Knowing these facts, suppose truly comprehensive memory and automation were available in a mixer you could actually afford. Would anything be left out? What would you get?

ProMix 01–The new definition of mixing with memory.

Snapshot Memory – As defined above, ProMix features total recall *and* total reset of *every* mixing parameter. It's like taking a picture of every mixer setting – the complete capture of a moment in time. That's why it's called snapshot memory. And with ProMix's total reset, you just press the Recall button and that moment comes back in an instant. In fact, ProMix 01 gives you the ability to save 50 of these snapshots, called *scenes*, right on board.

Library Memories – Not only does ProMix 01 save, recall and reset your settings, but it also comes with the built-in experience and memories of working professionals. These onboard libraries include pre-programmed eq curves, dynamic settings and effect presets that help you get working quickly and efficiently. And as you develop favorite settings of your own, ProMix 01 even has room to store these custom settings in memory as well.

Total Real-Time Automation – Add an outboard MIDI sequencer, and you'll have real-time control of every parameter inside ProMix 01. That means everything – not just faders and mutes! So imagine eq, panning, dynamics, effects and more, all changing in real time. And not only can you imagine it, now you can afford it too.

Complete Sonic Integrity – With its 20-bit A/D converters and its 24-bit internal digital processing, all of these features and functions happen *inside* ProMix 01 – without any compromise to your sound.

So after all this talk of automation and memory, what's the most important thing for you to remember? *ProMix 01.* And to jog your mind even further, **call 1-800-937-7171, ext. 570 for your free copy of the ProMix 01 Application Guide and Video.** Once you've read the book and seen the movie, you'll want to have your first lasting memory by visiting your nearest Yamaha dealer. Then get your hands on a ProMix 01. It might just remind you why you got into this business in the first place.

Store every setting in your mix as a single electronic snapshot, or "scene." Then push the Recall button, and you can instantly return to these settings – days, weeks or even months later.

USE READER SERVICE CARD FOR MORE INFO

1-800-937-7171 ext. 570

YAMAHA®
Smart Mixing

THE PRO AUDIO INDUSTRY STOCK, LITERALLY

IPOs RIVALING DSPs AS AUDIO GOES PUBLIC

BY DAN DALEY

The professional audio industry has historically been a haven for mavericks and entrepreneurs who, aiming at making sound sound better, followed visions in the cloaked privacy of their basements and garages on weekends. Some of them got their products to market. A few made some money out of it. A very few got rich. In the process, they built an industry.

About 12 years ago, that industry experienced two dramatic course corrections that are now pointing it at a broader destination. First, equipment manufacturers began to notice and respond to a small but intense and growing coterie of audio professionals who wanted to work outside the traditional boundaries of recording studios. Affordable, downsized but very functional recording equipment came out, first tentatively, then with a fire-hose flow, constantly refining and lessening the cost of the technology. The narrow conduit of sales potential for professional audio equipment suddenly expanded into a range of users, from stars like Todd Rundgren and Sting to kids with garage bands and all shades in between. Pro audio was becoming a mass market.

Around the same time, the recording business entered a more advanced phase of synchronicity with the computer industry. The introduction of CPU-based systems such as the Synclavier and the Fairlight spearheaded a rapid proliferation of computer-based or -controlled hardware and software, from console automation to sequencing, edit-

ing and sampling packages. Computer literacy, both on the part of users and manufacturers, became a requirement in audio recording to remain competitive.

The confluence of these two trends gave professional audio an enhanced profile among people who might otherwise not have given the industry much thought. While there is no shortage of MBAs working at pro audio companies, their counterparts in the financial industry have only taken notice of the sound business in the last three or four years. The result: a new intersection where Wall Street meets Beale Street, Abbey Road and the Sunset Strip.

Most recently, two major pro audio manufacturers—Mackie Designs and Euphonix—ventured out for public financing via initial public offerings (IPOs), in which a percentage of the value of the companies was put up for sale to the public in the form of shares in the company, known as stock. In July 1992, Spatializer Audio Labs went public on the Vancouver Stock Exchange, as did several other 3-D pro audio companies, including QSound. (That they used Canadian stock markets is interesting. Canadian markets are not as heavily regulated and scrutinized as U.S. markets are, making it easier for new and offbeat technologies to get attention. On the other hand, the looser regulatory environment allows more opportunity for conflict; Spatializer and QSound are presently in litigation with each other regarding patents.)

Spatializer is now listed, as of this year, on the U.S.-based NASDAQ exchange, the favored exchange for small-cap technology companies. Also in 1992, Avid Technology went public. In December of the following year, Digidesign went the IPO route, and in January 1995, the two companies—with the approval of stockholders—merged. In February 1994, Sonic Solutions also went public. In the process, these companies acquired the sometimes cryptic three- or four-letter symbols that both identify them to the computers of the financial world and that identify them as part of this club. Spatializer became SPAZ, Mackie is MKIE, and Euphonix is now simply EUPH to a broker; Sonic Solutions compressed to

ILLUSTRATION BY STEWART STANYARD

SNIC and Avid's name gave it an implicit advantage—AVID.

These companies chose to go public for similar reasons—access to capital for continued expansion, enhanced validity to larger commercial markets, and as a reward for private investors and employees by making the value of their investments liquid. The implications of these moves for the overall professional audio industry, though, are more diverse: They bring a combination of potential advantages and pitfalls that, despite a few years' experience, have yet to become completely clear.

THE [PRO AUDIO] MARKET IS MOVING FAST. YOU CAN'T SURVIVE VERY LONG ON YOUR OWN. THE COMPETITION IS BONE-CRUNCHING IN INTENSITY, AND IT'S GLOBAL. YOU NEED TO BE FAST AND BE ABLE TO ACCESS CAPITAL WHEN YOU NEED IT.

—STEVE GERSHICK

THE DISTRACTION FACTOR

"The biggest trade-off is the fact that the company managers, many of whom in pro audio are also technical people, have to start spending most of their time talking to Wall Street." So says Peter Gotcher, president of Digidesign, now a subsidiary of Avid, and vice president of Avid's audio division. Gotcher oversees the audio operations of a company that sold approximately 25% of its stated value of $210 million when it went public. Digidesign's stock at its IPO was $14 per share; at the time of the merger with Avid two years later, it was $30. Avid's stock was $32 per share. Gotcher quickly found himself more consumed with balance sheets than with product development, an area he had always maintained a presence in at the company. "I'd always led product strategy [at Digidesign]," he says. "When we went public, I admit I got distracted by having to deal with the financial community. I spent less time on product strategy. With the Avid merger, I could focus back on products instead of financials since [Avid CEO] Curt Rawley does most of the talking to The Street [as in "Wall Street"]. But at the time, I remember that going public really took a lot of mental bandwidth."

What consumed much of that bandwidth initially was the "road show," a traveling financial circus that every company going into public financial markets undertakes. After balance sheets and a prospectus on the candidate company are compiled by the financial institution or brokerage house that will handle the IPO, the financial managers take the company CEO, CFO or other senior management personnel on a tour of various institutional buyers across the country. Because of their large combined financial clout, institutions such as mutual finds, investment counseling firms and insurance companies are prime targets for those seeking support for an IPO. The road show is about power breakfasts and power lunches, sometimes more than one city a day. When Sonic Solutions went to market, its CEO saw 27 financial institutions in a week-and-a-half. It's a lot like touring, except the stakes are much higher.

PROSPECTING

It's at this point that a professional audio company becomes just another specimen to be analyzed from the clinical, green-eyeshade point of view. It doesn't matter to professional investors whether you make workstations or widgets; they're looking for profitability and growth.

The prospectus that each public company candidate must prepare—in conjunction with the broker taking it to market, lawyers and accountants—provides an interesting look into the industry as well as the company itself. The prospectus begins with an explanation of the company and what it does, what it makes and what its markets are. These explanations seem simplistic, but they reflect the fact that institutional and other types of investors are looking at scores of different industries every week, most of which they have little or no knowledge of. For instance, in Mackie Design's prospectus, the company's mixing console is described as a device that "electronically blends, routes and enhances sound sources such as voices, musical instruments, sound effects and prerecorded material." Pretty basic, but if you were considering investing in a biotech or nuclear waste disposal firm, you'd want the same simplicity of language regarding their gear.

After a summary of financial information, including sales, profit and loss and operating expenses data, one of the most important parts of the prospectus to investors comes under the heading "Risk Factors." The risk sections of prospecti can sometimes go to extreme lengths, functioning as a disclaimer and addressing the emphasis that securities and exchange laws place on candidates divulging all required information to potential investors. Peter Gotcher of Avid observes of the prospectus risk sections, "They're worded in such a way as to point out in the most extreme fashion what could go wrong. It's an insurance policy. I was surprised ours didn't include the possibility of an asteroid strike."

But though there are boiler plate elements to them, in most cases the risks are real, and they allow a candid view into manufacturers rarely seen in trade publications. As the opening paragraph in Mackie's prospectus puts it, "The Company's past success has depended, and its future success will depend, in large part on its ability to enhance its existing products and introduce new products...There can be no assurance that the Company will successfully develop such enhancements or products." More precisely, though, it continues, "In certain instances, the Company has experienced delays in the initial shipments of new products and has experi-

The RØDE™ to Recording Success Starts Here...

The real passion behind a hit song lies in the performance. You want all the emotion and the expression of the performance to burst onto the track and shine its way through the mix. Whether it's a truly great take or just a happy accident, you want that moment captured in all of its glory. When that inspired moment occurs, you need to have the right mic...the **RØDE™ NT2.**

The RØDE™ has all the special stuff:

- **Dual Gradient Transducers** with **Large Diaphragm** and **Gold Plated Membrane** to warmly receive and translate the full body of the performance
- Internal **Gold Plated Connections,** insuring warmth and precise signal transitions for years to come
- **Transformer-less** low-noise circuitry
- **Switchable Filter** enabling you to change the low frequency response
- **Switchable Pad** enabling you to handle high gain
- **Switchable Pattern** providing cardioid or omni patterns
- **High SPL** *(sound pressure level)* allowing it to work cleanly for screaming vocals or instruments, or even soft spoken word
- It even comes with a **Shock Mount, Flight Case,** and **Pop Filter.**

The RØDE™ large Diaphragm Condenser Mic is hand-assembled in Australia. In the tradition of the great microphones, it's designed to furnish outstanding, vintage-flavored vocal or instrumentation miking—at a truly untraditional, breakthrough price . . . **$749.00**

Step on the road to recording success by seeking out your nearest EVENT Electronics dealer. Listen to the NT2 and hear the difference a great mic can make.

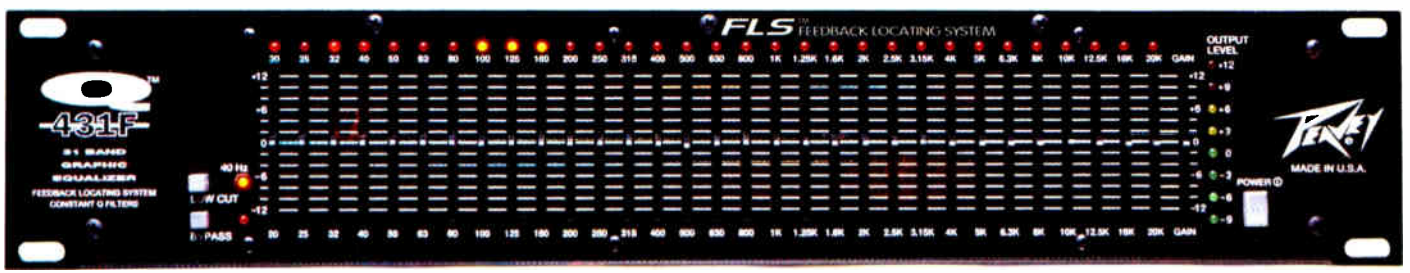
RØDE is a trademark of Freedman Electronics.

EVENT
ELECTRONICS INC

P.O. Box 4189
Santa Barbara CA 93140-4189
voice 805-962-6926
fax 805-962-3830

CIRCLE READER SERVICE CARD FOR MORE INFO

Our Equalizers with FLS are turning heads.



Our new Q 431F, Q 431FM and Q 231F are more than typical graphic EQs. Of course they have great features to help you easily adjust your system to changing room environments. But they also have something you didn't expect. Our new FLS Feedback Locating System™ (patent pending). That's right, a graphic EQ that tells you exactly where the feedback is! When feedback occurs the FLS™ automatically lights an LED over the correct slider, telling you exactly where to adjust the EQ. The LED will stay lit for a few seconds if a feedback stops before an adjustment is made. If the feedback frequency is between two sliders, two LEDS will light over adjacent sliders, with variations in intensity to indicate if the feedback is closer to one slider or the other. And if a different feedback occurs while an LED is lit, the FLS instantly lights the other LED. By the way, the other features will turn your head too, like Constant Q filters on standard ISO centers which control slider bandwidth to minimize the impact of slider adjustment on adjacent slider levels, +18 dB max input/output levels, ±12 dB cut/boost (+12 dB boost/-18 dB cut on the Q 431FM), balanced/unbalanced inputs and outputs, independent overall channel gain controls, Low Cut and Bypass switches with LEDs, shielded internal power supply (no wall wart), -95 dB S/N, and more. See them at your Peavey dealer today!

PEAVEY

Technology Leader

enced product shortages due to manufacturing capacity limitations."

The risk section goes on to analyze Mackie's short-term dependence upon the success of its SR-24 mixer, which was introduced last summer. It also addresses the fact that a single Mackie product line accounted for approximately 48% of the company's net sales in the first half of 1995. The prospectus analyzed the competition, noting that Harman International, Sony, Peavey, Yamaha, Teac and Soundtracs offer "significant" competition. Furthermore, the report notes that Mackie has not historically applied for patents for its products (the SR-24 is the first), nor has it ever conducted a comprehensive patent search on the technologies it uses. And "The Company's officers have not managed other companies as large as [Mackie]."

In short, the risk section pointed out significant potential flaws in Mackie's manufacturing, management and legal domains. But that still didn't stop Mackie's stock, which opened at $12 on August 18 of last year, from jumping to over $15 in the first half hour of its issue, a rise of more than 25% in value. While IPOs often inflate in price upon release, that's not a rule that is written in stone, particularly for high-tech stocks. Panamsat (SPOT/NASDAQ), a global satellite network and putatively a hot technology issue, was expected to do well on its IPO in 1995 at $17. It dropped within 24 hours to as low as $15 and has yet to recover.

Tom Elliott came on as Mackie's new CFO in early 1995, partly in response to some of the managerial issues raised in the prospectus. Elliott, who has financial management experience at other publicly held companies but none with professional audio manufacturers, says that the public markets process provided Mackie with an opportunity to reorganize and tighten its management accordingly. "The public process forces a company to focus on fundamental business issues that might have been overlooked as the company grew," he explains. "In that way, it's healthy." Regarding the narrow product line, Elliott states that Mackie's line will be broadened in the near future, partially in response to anticipated pressure from investors to do so, as well as in response to the pro audio market itself. More engineering talent is being hired at Mackie to support that expansion, which in turn also raises costs. But Elliott is also quick to point out that Mackie, in his opinion, was financially well-managed before his arrival, and that there have been no conflicts to date between his financial sensibilities and the technical visions of the company's founders.

Euphonix's prospectus lists similar caveats, including past delivery delays and software errors. Listing Euphonix's competition, the prospectus further states that, "Many of the Company's competitors are larger and have greater financial, technical, manufacturing and marketing resources, broader product offerings, more extensive distribution networks and larger installed bases... [M]any potential customers in...targeted markets are often reluctant to commit significant resources to replace their current products and to retrain operators." The prospectus also notes Euphonix's dependency upon a single manufacturing facility in Palo Alto, stating that any significant disaster, natural or otherwise, could materially disrupt manufacturing and delivery. While citing "fire, flood, earthquake" could seem unduly comprehensive, that's precisely what happened to another pro audio manufacturer, JBL, a division of the publicly traded Harman International, when its Northridge facility was severely damaged in the 1994 California earthquake. JBL got its mammoth facility up and running again rapidly, as be-

TL AUDIO INTERNATIONAL DISTRIBUTORS

ASIA & FAR EAST
VW MARKETING
TEL +44 (0)1379 798481
FAX +44 (0)1379 724009

AUSTRIA
TON EICHENGER
TEL +431 4865 165
FAX +431 4865 165

BELGIUM
AMPTEC
TEL +32 11 98 14 58
FAX +32 11 98 14 59

CANADA
SASCOM MARKETING GROUP
TEL +1 905 469 8080
FAX +1 905 469 1129

CYPRUS
EMPIRE MUSIC
TEL +357 2 490479
FAX +357 2 490863

DENMARK
DANISH AUDIO DISTRIBUTION
TEL +45 3168 9811
FAX +45 3165 2449

FINLAND
SOUND MEDIA LTD
TEL +358 0 510 9355
FAX +358 0 510 2257

FRANCE
MUSIC BUSINESS
TEL +33 1 43 38 15 95
FAX +33 1 43 38 70 79

GERMANY
GROOVE MUSIC (S E A)
TEL +49 5903 93 880
FAX +49 5903 6141

GREECE
SOUND CONTROL S A AUDIO & VIDEO SYSTEM
TEL +30 1 8837 69930
FAX +30 1 8836 377

HOLLAND
AUDIO ELECTRONICS MATTIJSEN
TEL +31 20 699 04 80
FAX +31 20 699 36 41

ICELAND
B F PA SYSTEMS
TEL +354 1 121 44
FAX +354 1 612 144

INDONESIA
MULTI AUDIO PERKASA
TEL +62 21 629 6009
FAX +62 21 629 8453

ITALY
PRODUX SRL
TEL +39 2 393 11571
FAX +39 2 393 12609

JAPAN
HOOK UP INC
TEL +81 33 643 5735
FAX +81 33 367 4778

PORTUGAL
MUNDO MUSIC
TEL +351 2 200 4616
FAX +351 2 208 4949

RUSSIA
A & T TRADE
TEL +7 095 978 2016
FAX +7 503 956 1105

SINGAPORE/MALAYSIA
SWEE LEE COMPANY
TEL +65 336 7886
FAX +65 339 7085

SPAIN
REFLEXION ARTS
TEL +34 86 48 11 55
FAX +34 86 48 90 65

SWEDEN
ESTRAD MUSIC
TEL +46 8 643 90 07
OR +46 8 640 19 60
FAX +46 8 709 90 16

SWITZERLAND
ZAP AUDIO
TEL +41 22 340 05 70
FAX +41 22 340 05 75

SWITZERLAND
NAGRA - BROADCAST
TEL +41 21 732 01 01
FAX +41 21 732 01 00

TAIWAN
TRUE SOUND TRADING CO LTD
TEL +886 2 595 8519
FAX +886 2 594 0032

USA
SASCOM MARKETING GROUP
TEL +1 905 469 8080
FAX +1 905 469 1129

ADD THE WARMTH FEEL THE GLOW...

NEW!

NEW!

"I first tested the TL Audio VI-1 in conjunction with a Yamaha AW8X A-D convertor and a Sony 3324 digital multitrack. I was so impressed with the warmth and smooth bottom end that the unit added to the recording that I have ordered a VI-1 for our in-house studio and for our hire stock."
Ian Silvester
Digital Audio Technology, London

TUBE TECHNOLOGY

Give your recordings the rich, warm glow of **Tube Technology**, a series of tube based mixers & signal processors. Take for example the new VI-1 interface, which offers 8 channels of tube warmth making it the ideal partner for digital multitracks, hard disk systems, stereo mastering & copying. Then there's the superb new EQ2 - a sophisticated, twin channel, parametric 4 band Tube Equaliser. Both these new additions offer the smooth sound, very low noise floor, quality construction & everyday affordability that only TL Audio can deliver.

To feel the glow contact your nearest authorised dealer.

THE TL AUDIO TUBE RANGE

$2395 **EQ2 Stereo Tube Parametric EQ**
4 band parametric, variable filters, mic-amps, +4Bv phantom power, dual mono or stereo linked modes.

$795 **VI-1 8 Channel Tube Interface**
Line amp, balanced ins & outs, unbalanced compatible, level matching for -10dB & +4dB equipment.

$5995 **8:2 Tube Mixer**

$595 **Dual Tube Mic Pre-amp/DI**

$1695 **Dual Pentode Tube Pre-amp**

$1595 **Dual Tube EQ**

$1795 **Dual Tube Compressor**

SASCOM MARKETING GROUP
For US & Canada Sales
Tel: +1 905 - 469 8080
Fax: +1 905 - 469 1129

TL Audio

Worldwide Distribution **Tony Larking Professional Sales Ltd.** Letchworth, SG6 1AN (UK). **Tel: +44 (0)1462 490600 Fax: +44 (0)1462 490700**

fore-and-after pictures in the facility's lobby illustrate. But it also had significantly more resources from its larger parent company.

Such intense scrutiny (not only of risks but of a company's total financial health, management, short- and long-term plans and potential, and other elements) is what awaits those companies that choose to go public—they must be ready to go under the microscope and to do so in broad daylight. "More than anything, if a company attempts to become publicly traded, one thing that determines its viability is its ability to operate at a profit and withstand that kind of examination," says John Carey, now vice president of marketing at Euphonix. Carey came to the company after the decision to go public was made, but before its IPO in August 1995 (the 1.2 million shares the company itself sold generated in excess of $10 million). He says that the risk summary of the prospectus "was a very accurate, and painfully honest, recounting...[of] the several hurdles we have to face as a console manufacturer. On the other hand, we've had a plan in place to grow the company for some time, and this was an opportunity to help that plan."

Adds Jim Dobbie, Euphonix's CEO and one of the company's founders, "Strategic plans always involve taking advantage of opportunities." Dobbie says that the IPO has had little effect on the company's R&D allocation, which stood at nearly 13% of sales during the first quarter of this year and 10.6% during the second. However, echoing the sentiments of several newly public companies, Carey notes, "It may have an impact on the way we present ourselves in writing. We have to be cautious about any representations we make about future performance. In companies I've worked for in the past that were privately held, there was a more casual attitude toward what was proposed or said about the company's present and future product lines. When you're public, you have to monitor such statements and avoid hyperbole."

This kind of attention to detail underscores the intensity of the probing that public candidates receive. "When I went on the road show, I'm not sure if the managers I saw knew the difference between digital audio and dishwashers," recalls Peter Gotcher of Avid. "But I do know that they knew the questions to ask about operations and impact on a company in different scenarios. They're very experienced at looking at businesses."

THE INVESTOR'S POV

Jeff Wells, managing director for investments at brokerage house Piper Jaffray in San Francisco, was directly involved in taking both Mackie Designs and Euphonix to market over the summer. Institutional interest in both issues was high, he says, an indication that the large investment entities view pro audio as a type of computer peripheral. "When an IPO is deemed to be attractive it usually gets more institutional interest," explains Wells, who is co-producing his own classical guitar CD and uses both Mackie and Alesis mixers. "In the case of Mackie and Euphonix, the institutional interest was high. It's the digital/computer connection that makes these stocks attractive to them."

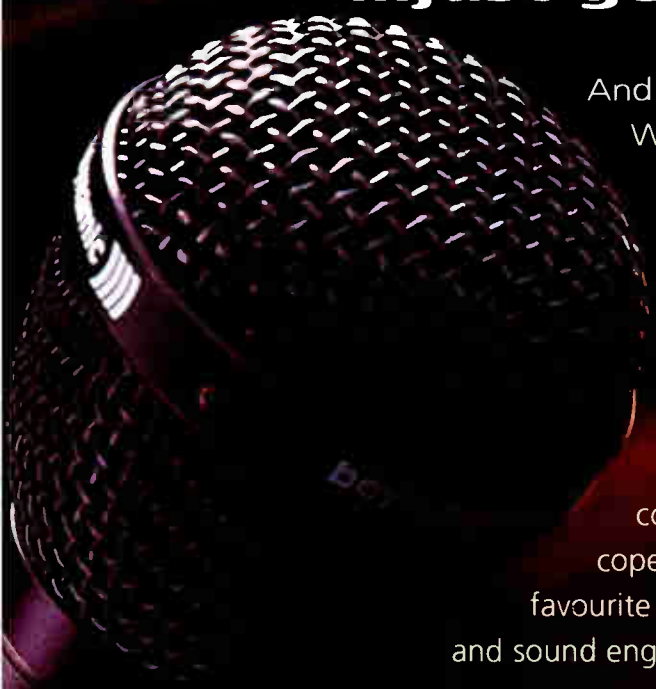
Wells expects to see more smaller pro audio companies go public in the near future, particularly as the mass market aspect of the industry heats up. He cited two feature articles on personal recording equipment, in the October '95 issue of *Forbes* and the July 12, 1995, *Wall Street Journal*, as reflective of the increasing interest in pro audio by investors. "It's going to heat up over time as the market blooms," he says. "I'd also expect to see more mergers and acquisitions occurring in the industry as time goes on."

From the potential investor's perspective, a pro audio company is less the sum of its parts than the figures on its balance sheet. "Their fortunes are closely tied to the ability of their customers to invest in capital spending," explains Perry Gregoriou, senior associate at Nashville Capital, an investment counseling firm. "That makes them cyclical in nature—their growth and revenues will cycle. You want that kind of a company in an expanding economy; you don't want them during a recession." U.S. markets are in a bull market now, and the pro audio companies realize it. As Bob Doris of Sonic Solutions puts it, "The future of this trend will depend to a degree upon how long the equity markets keep the window open. Right now, it's wide open."

Gregoriou has resources in a pro audio center like Nashville to help explain a given pro audio company's product to him; nonetheless, he relies primarily on a company's prospectus and uses anecdotal information only to fine-tune that evaluation. "I looked at the trade magazines and heard that people were buying Mackie boards," he says. "It comes off as a cutting-edge

THE BEST DYNAMIC MICROPHONES IN THE WORLD

...just got affordable



And that's *not* just our opinion. Why do 70% of world tours specify the M 88 TG in their equipment schedules? Pure quality of sound and dependable performance.

The M 88 TG's stunning performance together with a construction tough enough to cope with the road make it a favourite with artists and sound engineers.

On vocals, the M 88 TG's low proximity effect and hypercardioid response combine to give outstanding performance with fantastic feedback rejection while the high SPL capability provides a clean, clear signal with a unique sound.

For instrument use on stage, check out the M 69 TG. Its low proximity effect, high sensitivity, and extended frequency response give excellent results in almost every environment.

See your dealer today and check out the legendary M 88 TG and M 69 TG. The choice of the professionals.

Now priced within everyone's reach!

For more information or a brochure, call 1-800-293-4463

beyerdynamic

company, and that helps. What's scary is that Mackie and a lot of other pro audio companies are single-product-type companies. It's a higher investment risk because all their eggs are in one basket. But I care less for the anecdotal information than for what their income statement and balance sheet [tell me]."

THE NEW MIDDLE CLASS

Sonic Solutions went public in February 1994. "Five years ago, there were two classes of companies in pro audio," explains Sonic's president and CEO Bob Doris, "the smaller, private companies and the [pro audio] divisions of larger companies. There was not much in between. What going public does is give smaller companies access to capital in a much more readily available form than a private placement, as well as give them a liquidity strategy, and it helps eliminate concerns about the company, since it has survived the IPO process. Going public, in combination with the new types of customers that pro audio has developed over the last decade, has created a new middle class of manufacturer in the industry."

Doris, like others in his position, states that another potential issue that comes with going public is pressure by investors for short-term profitability and the potential impact that that can have on long-term research and product development. "I think it's true that financial markets are very short-term-oriented," he concedes. "There's an incredible fascination with quarterly numbers. There are times that companies have to do things for the long term that may not have short-term benefits. When you get to one of those times, a public company will have to be a lot more careful in its explanations to shareholders than a private company can be." Nonetheless, Doris believes that there has been no slowing of R&D at Sonic Solutions up to this point due to stockholder inhibition. Still, he adds, "Their primary concern is, what kind of earnings and growth performance can you exhibit? You have to explain to them that there's a conscious trade-off, that there's sometimes more important things to do that are better for companies in the long run than make the quick sale."

Steve Gershick, president and CEO at Spatializer Audio Laboratories, developer of a 3-D sound technology, says that despite moving his product into consumer markets, the pro audio side was the main focus, and still is. Spatializer's situation was different than some others in that it went to market in July, 1992, with a concept rather than a product (which again is not unusual in the computer world, a notable example being Tripp Hawkins' 3DO game system).

"We needed capitalization to further develop the concept into a product and then market it," Gershick says. The stock debuted on the Vancouver Exchange at $1.20 Canadian (about one dollar U.S. at the exchange rate of the time), and was trading at U.S. $5.50 on the NASDAQ exchange after it entered the U.S. market last August. Nineteen-and-a-half million shares are in circulation. "Going public is beneficial for R&D in that it funds it," Gershick says. "The disadvantage is that you take on all sorts of new costs in dealing with the accounting and regulatory costs involved in going public, which become part of the overall cost of doing business. And it's conceivable that public companies make decisions about R&D and other things that they may not have had they remained private. If that's good or bad, I don't know. But investors make certain demands, and you

SEIZE THE MEANS OF PRODUCTION!

THE NEW K2500 SERIES: THE REVOLUTION HAS BEGUN.

THE PRODUCTION STATIONS – Kurzweil's most powerful sampling synthesizers ever: the **K2500 Series**. So powerful and flexible, you can take a project from conception to completion without leaving the instrument – and interface with a myriad of analog and digital formats. The **K2500** instruments, available in rack-mount, 76-note semi-weighted and 88-note fully-weighted keyboard versions.

STUNNING ON-BOARD SOUNDS – A stunning new soundset of 200 programs and powerful performance setups, plus a separate disk containing 1,000 useful programs. Load samples in Akai®, Roland®, Ensoniq®, AIFF and WAVE formats from disk, via SCSI or MIDI, and process them with V.A.S.T.*

V.A.S.T. POWER – *Variable Architecture Synthesis Technology* offers 60 DSP functions arrangeable in 31 algorithms. Use different methods of synthesis within the same program, including the unique *KB-3** harmonic synthesis mode, as simple as the drawbars of a tonewheel organ.

SAMPLE WHILE PLAY – The *SMP-2 Sampling Option* has digital and optical I/O; use the sample-while-play facility to record samples while continuing other operations, or sample the K2500's audio outputs or sequencer.

MULTI-TRACK SEQUENCER – The K2500 Series' on-board sequencer offers state-of-the-art, computer-based sequencer features plus flexible live performance interaction. Trigger sequences from keys or controllers via the Interactive Sequence Arranger (ISA).

UPGRADABILITY – Optional upgrades for the **K2500** include the KDFX Digital Effects Option, providing four stereo buses of state-of-the-art DSP; the *Orchestral ROM*, *Contemporary ROM* and *Stereo Grand Piano SoundBlocks*, for a total of 28 MB of Kurzweil's finest sounds; and the *Digital MultiTrack interface (DMTi)*, allowing sample rate/format conversions and direct connection to DA-88 or ADAT®.

SOFTWARE UPGRADES IN A FLASH – With *Flash ROM*, upgrade the operating system from floppy disk or via SCSI.

SEIZE THE MEANS OF PRODUCTION – Play the K2500 Series at your authorized Kurzweil dealer today.

*KB-3 Harmonic Synthesis Mode available 1996.

KURZWEIL®
Music Systems
Kurzweil is a product line of Young Chang
PURE INSPIRATION

PLAYERS OF THE WORLD...
Visit our Web site – get a *FREE* T-Shirt!
http://www.youngchang.com/kurzweil/
Get a *FREE* Poster at your Authorized Kurzweil Dealer.**

Kurzweil Music Systems, 13336 Alondra Blvd., Cerritos, CA 90703 Tel: +1 310/926-3200 Fax: +1 310/404-0748.
Young Chang (Piano) Canada Corp., 395 Cochrane Drive, Markham, Ont L3R 9R5 Tel: +1 905/513-6240 Fax: +1 905/513-9445 E-mail: kurzweil@aol.com

have to respond. What I can tell you is that the [pro audio] market is moving very fast right now. You can't survive very long out there on your own anymore. The competition is bone-crunching in intensity and it's global. You need to be fast and be able to access capital when you need it."

THE FUTURE

Pro audio companies going public is part of a larger overall trend in the entertainment industry. For every merger (such as Time/Warner, Time/Warner/Turner, ad infinitum) that makes the front page, there are dozens of other big and little shifts occurring, such as Veritas Music Entertainment, an independent country label headed by former Sony Nashville chief Roy Wunsch, which went public to raise capital in July. "Going public could help small [pro audio] businesses become more unified with other facets of the entertainment industry," says John Carey of Euphonix. "Pro audio is no longer this separate thing. This convergence you read about is part of our everyday life. Broadcast, post, music, TV, films are all part of a larger business entity. And it's that convergence that enables a smaller company like ours to catch the attention of the investment community at large."

Bob Doris concurs: "What's happened in the last few years is that the financial community has realized that the pro audio industry has undergone a state change from analog to digital. It's the same transition that printing, design and the video industries, to name a few, have undergone. We've already seen it at NAB, which used to be dominated by a handful of large companies. Now you see a number of smaller technology companies in that field, like Discreet Logic and Soft Image, going public and being better able to compete."

But Doris says he has some concerns about what going public could do to the industry as a whole in the future if the trend continues. "There's the possibility that manufacturers will not develop technology as rapidly or go for as adventurous and interesting product lines as they might have otherwise," he cautions. "There's some danger in that. On the other hand, once you're public, the incentive is there even more to continue to grow, and in some ways that pressure could encourage the development of new technologies." ■

Dan Daley is Mix's East Coast editor.

SOUND CHECK

Sound Check was designed as a universal tool, one which *anyone* with a serious interest in sound—whether amateur or professional—would find beneficial and easy to use.

Originally released in Europe in 1993, *Sound Check* is now considered an indispensible aid by sound engineers, record producers, hi-fi enthusiasts, musicians, broadcasters, equipment installers, sound reinforcement personnel—the list goes on.

What's on the *Sound Check* disc? A total of 92 essential tracks in all: Test tones—yes—but also dry, unprocessed instrumental and vocal recordings, sound effects (one or two of repute—the *Chieftain Tank* recording brought down the ceiling at one demonstration), some of the best sounding finished products to be found, along with utilities like time code and a musical tuning reference.

Alan Parsons & Stephen Court

Mastered by Mobile Fidelity Sound Lab

The Professional Audio Test Disc

Sound Check is available at your local record, audio and hi-fi store. To locate a dealer near you or, if you prefer to order direct, call 1.800.423.5759.

ULTRADISC II

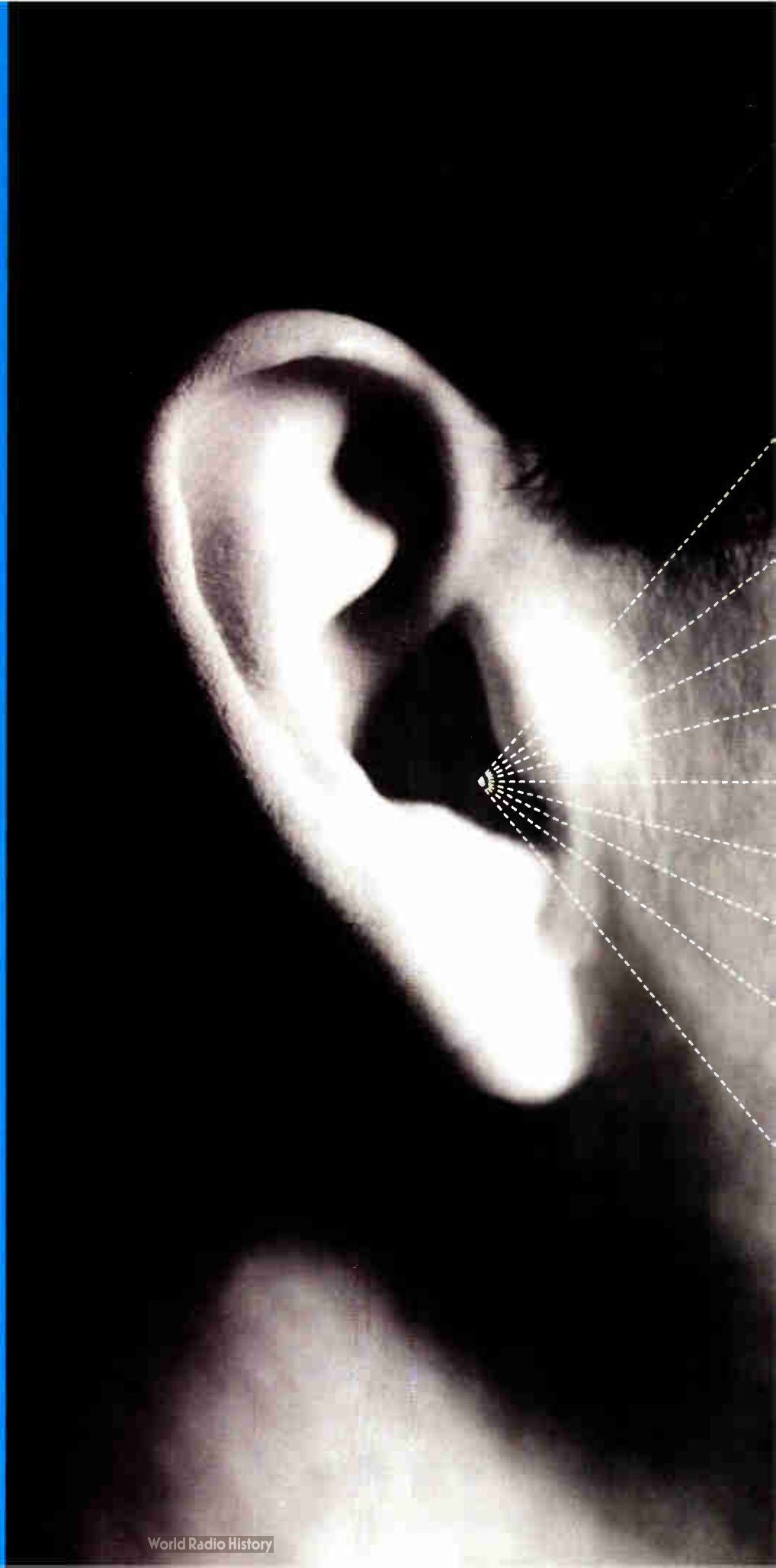
mobile fidelity sound lab MFSL, INC.

"Alan Parsons and Stephen Court have done a splendid job of assembling a practical tool for serious studio and concert professionals. This one's got it all—great sound quality, a good selection of useful cuts and the Ultradisc pressing is an added bonus. No doubt about it. This one's a winner."

—George Petersen, editor Mix Magazine

105 Morris Street • Sebastopol, CA 95472 • 800-423-5759 • In Canada call 800-267-1216 • WWW URL address: http://www.mofi.com/

Gregg Rubin, Engineer
After several platinum and gold CDs, and an Emmy, he has an ear for sound.



He listens. Half the year in the studio. The other half on the road as a live sound mixer. For Gregg Rubin the challenge is to capture the immediacy of music. After hundreds of live performances and countless hours in the studio, he knows what music really sounds like. What goes in his ear is what gets laid down on Sony Digital Audio Recording Media.

"It doesn't matter if a performance is great if the tape you're recording it on, isn't. That's why I trust Sony DAT tape for my live and 2-track masters. In the studio, I prefer Sony DASH tape. It's so precise, and I can punch as many times as I want without compromising the quality of the recording. And for live multitrack recording, I've discovered the DARS series for 8mm MDMS — it's performed flawlessly. The bottom line is that I know everything I'm putting down is safe — so the sound I hear the day of the recording is exactly the sound I hear the day of the mix."

Whether you're working in the control room, on location or in your basement, make the most of every note. Sony Digital Audio. After all, sound that inspires is not a luxury, it's a necessity. For a brochure call 1-800-955-SONY.

SONY

Converting the industry bit by bit.™

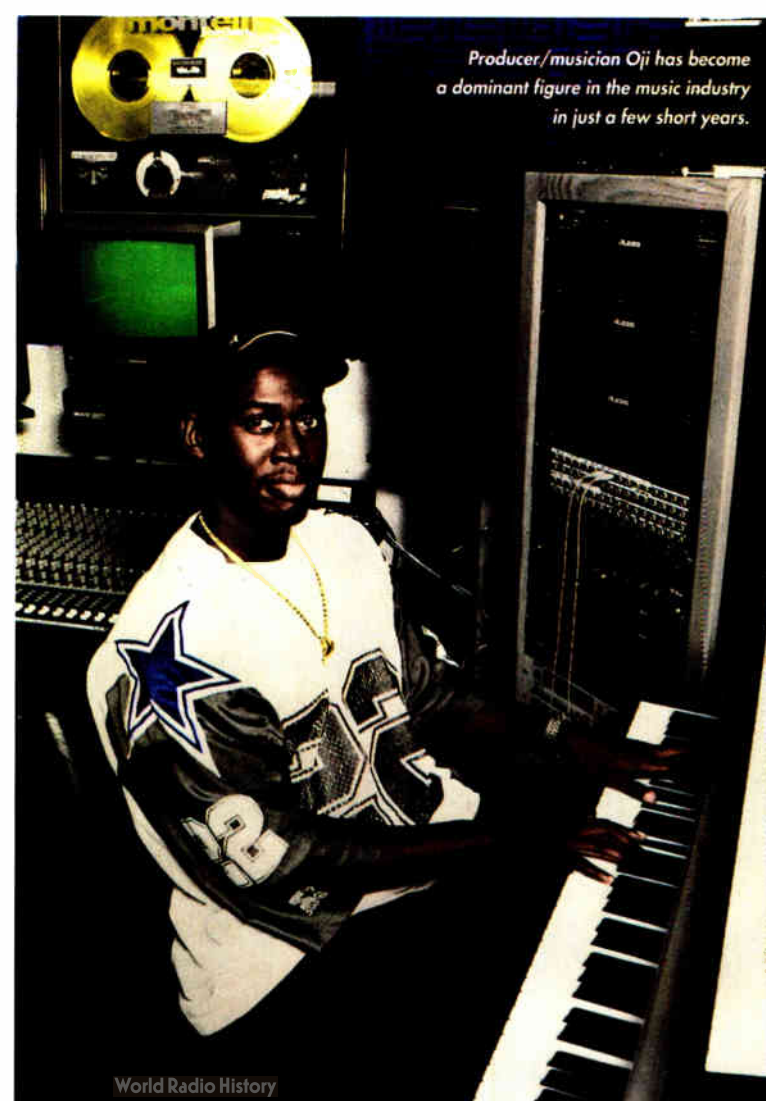
SAMPLING IN THE MUSIC BUSINESS

From a wailing storm to barking dogs, the range of sounds that can be borrowed from other sources and incorporated into a new recording is limitless. Sample fidelity and sampler programming features began as expensive, esoteric processes. But having evolved into something that is accessible to almost everyone, sampling now affects a vast portion of what we do in the replication of sound.

SAMPLE LIBRARIES

There are two ways to load sounds into a sampler. One way is by recording the sound "live" via a microphone, directly into your sampler. Another way is to record line-level audio; using this method, you can record audio signals generated by electronic sources. You can build quite a collection of sounds with these methods. But if you don't have the time or dedication to create a personalized collection, you may want to take advantage of the many prerecorded sources there are on the market. There are a

BY CHRISTOPHER PATTON



Producer/musician Oji has become a dominant figure in the music industry in just a few short years.

BECAUSE IT WAS AT FIRST CONSIDERED A GIMMICK OR NOVELTY, MANY INDUSTRY PEOPLE PREDICTED THAT SAMPLING WOULD EVENTUALLY DIE; HOWEVER, JUST THE OPPOSITE HAS OCCURRED.

plethora of commercially available sample libraries consisting of high-quality recordings of a variety of sound sources and instrumentation. The primary media for recorded sounds today are CD, and to a lesser extent, CD-ROM. Companies such as Mix Bookshelf and East-West offer catalogs where you will find a wide selection of sample libraries on CD or CD-ROM.

We recommend you do some research before forking over your hard-earned cash. Find out exactly which instruments are included. How many sounds are actually usable for your project, or general applications? Don't buy a CD drum library when what you really need is orchestral percussion. Kettle drums aren't big bass drums! If you're using drum loops and would like to combine other samples, find out whether the disk you wish to buy gives you bpm (beats-per-minute) tempo information. R&B and rap producer Al Eaton says, "The absence of a time signature is rarely a problem. Tempo information is, however, useful."

Producer Doug DeAngelis tries to avoid drum loop CDs altogether; he mostly samples individual drum sounds. Using his Roland MPC-3000 drum machine, he can set up a groove and insert all his sampled percussion from one of his Akai samplers. This is then sequenced with Performer software on a Macintosh. Other sample discs he avoids are ones that have analog synth sounds. "CDs with Mellotrons and other analog synths on them never sound good to me. I found that they're okay in a dance environment for an analog sound effect, but as far as being playable they're a disappointment. Samples taken from these CDs can be very difficult to play."

When buying a CD library, also make sure the recordings were done in a studio and not in someone's basement. Studios are generally better-suited to capture the timbre of the sound being recorded. A person in their basement or garage might not be able to isolate and equalize the sound. If possible, try to demo the disc. Companies such as East-West have retail "JukeBoxes," featuring the libraries in their catalogs, where you can demo and purchase the discs you really like. If

one is not be available at your local music store, ask around or contact East-West for a list of Juke-Boxes in your area. If you plan to use signal processing on your recording, check whether the sample sources were recorded with effects or dry.

WHO USES THEM

Because it was at first considered a gimmick or novelty, many industry people predicted that sampling would eventually die; however, just the opposite has occurred. There has been continued demand for sampled music among the younger record buyers. In his book *Sampling in the Record Business*, Michael Ashbourne states, "While traditional musicians may scoff at the notion that a rap producer who assembles new songs out of pieces of old ones is really creating a new work, today such producers are receiving thousands of dollars per master in producing fees, while gaining increasing respect for their talents in this area." Rap producers and artists became aware of the money-making potential of sample technology very early. Producers such as Teddy Riley, Dr. Dre and Jazzy Jeff lead the way in sampling techniques and compositional strategies. And some, such as Biz Markie, also lead the way in sample clearance litigation.

Producer Al Eaton, owner of One Little Indian Music Productions, has produced hits for Too Short and a variety of prominent rappers. Called one of the pioneers of the "Oaktown Sound," Eaton has used sample technology from the beginning. He'll sample sections of a composition, locate loop points and later duplicate the "feeling" by duplicating certain parts of the loop himself, over the sample. In this way, he feels he can avoid legal and financial complications from the use of a sample. He also feels he avoids the technical pitfalls of some sampling CDs. He described recently, in the August '95 issue of *Electronic Musician* magazine, a problem to watch out for with particular sample CDs—the difficulty in mixing samples from different tracks: "When trying to mix samples, when the full band or part of the band plays, the levels are set for the overall mix, but when only single instruments or sections of instruments play in the different part breakdowns, the volumes of the individual instruments change, so they're not consistent with the levels in the mix. This makes it hard to switch between the full band and, say, a bass breakdown, without having to adjust the volume on each sample to make them match, which can be a time-consuming process."

Another producer who has emerged on the scene recently is Oji, writer-producer on the Platinum-selling Montell Jordan project, "This Is How We Do It." He has also produced the rapper Coolio, who recently scored a hit with "Gangster's Paradise," using a sample loop of the Stevie Wonder song "Pastime Paradise."

E-A-Ski and his partner CMT of the Infrared Music Group also use sample technology extensively. They, like most producers I've spoken to who use sample CDs, mostly sample drums and percussion. "We use the sampling CDs with break beats," says E-A-Ski, "we [like to] sample snares and kicks on them. They make our job easier. When we started, sampling was just getting popular. We didn't like sampling then because a lot of people were using the same samples." With the selection of titles now available, almost anyone can take their projects to new creative levels. But E-A-Ski and CMT, like Eaton, shun the use of samples from other artists' music. "Today, lots of people are taking old hits, sampling them and getting on the charts. I think the creativity is missing. Kids growing up today are listening to the artists our parents grew up listening to in the '60s and '70s.

Someone once said:
"It's impossible to be all things to all people."
Well, guess again.

Orion

When post production engineers and studio owners find out about Orion, they tell us how excited they are about "surrounding themselves" with the industry's most inexpensive LCRS console. Those with a more "musical" bent are stoked about having faders in the in-line monitor section and **six bands of extended range EQ** to work with. Your typical "golden ear" types rave about the wide open sound of D&R's High Definition™ electronics and X's unique routing possibilities. And everyone comments about the bypassable on-board VCA's and the amazing array of automation options available at a fraction of the cost of other systems. Whatever your reason for sitting behind a mixing desk, there's no doubt that D&R's Orion has "upped the ante" in your search for the be all, end all mixing console. Is it really possible to be all things to all people? Call your D&R representative today for the answer.

RAISING THE STANDARD

D&R

D&R Mixing Consoles

International Headquarters:
Rijnkade 15B
1382 GS Weesp The Netherlands
Amsterdam +31 (294) 418 014
Dallas (903) 485-2344
Los Angeles (818) 291-5855
Email: drna@koyote.com

USE READER SERVICE CARD FOR MORE INFO

Believe us, it's easier this way.

digidesign

Imagine mixing audio entirely on your desktop with an EQ from Focusrite, or with reverbs from TC Electronic. Or time-aligning your replacement dialog in seconds with VocALign from Synchro Arts.

With Pro Tools III, mixing, editing and mastering are easier than with any other digital audio workstation. Because no other digital audio workstation provides a platform that allows third-party development partners, like the ones listed below, to create outstanding products that can be integrated completely and seamlessly into your system. Call 1.800.333.2137, x.175, for a free catalog of Digidesign Development Partner products. And see why more editors and engineers work with Pro Tools than with all other digital audio workstations combined.

PRO TOOLS

ANTARES™

The new **SST-Spectral Shaping Tool** allows you to correct acoustic imperfections in your speakers or listening room. Formerly known as Jupiter Systems, AnTares Systems also manufactures **JVP** and **MDT**. tel. 408-688-8593

Focusrite

The **D2**, a new high-end EQ Plug-In. Based on the RED 2 Parametric Equalizer, the latest version of the classic Rupert Neve-designed Focusrite EQ. tel. 415-688-0600 x.175

INTELLIGENT DEVICES

AD-1 Fro Audio Analyzer, the new TDM Plug-In that assures a perfect final digital master or CD — stereo peak and average metering, clip ind cation, real-time spectral analysis, and more. tel. 408-688-8593

lexicon

Combine Lexicon's world-class digital signal processing with **NuVerb's** graphic interface, and you can get the sound you're looking for, faster, and with more precision than ever before. tel. 617-736-0300

Steinberg

New Plug-Ins from Steinberg include **Spectralizer**, **TimeGuard** and **Tun-A**. Also out: The **DeClicker**: Today's solution to yesterday's clicks and pops. The **Virtual FX Rack**: A package of five essential audio tools developed to enhance your acoustic palette. tel. 818-993-4091

SYNCHRO ARTS

New for audio post production — **VocALign** works with Pro Tools to provide automatic analysis, time alignment, and editing of replacement audio to match the timing of the original audio. A must have for lip-synching, dialog replacement, and timing modification of one track to match another. tel. 44-1372-811934

t.c. electronic

TC Tools — New TDM Plug-Ins from an industry leader. Consisting of reverb and chorus algorithms from world-famous TC Electronic products — the TC M5000 Reverb and the TC 1210 Spatial Expander. tel. 415-688-0600 x.175

WAVES

Waves has set new standards for digital audio processing. New on the market: **Starter Tools**, the Plug-In that's three-in-one: EQ, Compressor and Gate. Waves also manufacturers the **LI-Ultramaximizer**, **Q10-Parametric EQ**, **CI-Compressor/Gate** and **SI-Stereo Imager** for high-quality processing with Pro Tools. tel. 423-588-9307

PORTADAT

SERIOUSLY PROFESSIONAL PORTABLE DAT

PORTADAT PDR1000

TIMECODE-EQUIPPED PORTADAT PDR1000TC

Superior sound quality, great handling and all the right features have rapidly established the PORTADAT professional portable DAT recorder as an international industry standard, with thousands of machines already hard at work around the world. Now you can get the full PORTADAT story direct from the professionals in **The PORTADAT News Bulletin** – 16 pages packed full with PORTADAT information, user interviews, accessories, updates and useful hints and tips. Call Independent Audio today on 207 773 2424 for your free copy.

PORTADAT NEWS BULLETIN
Call Independent Audio for your free copy

HHB

Independent Audio Inc · 295 Forest Avenue Suite 121, Portland, Maine 04101-2000, USA · Tel: 207 773 2424 · Fax: 207 773 2422 · E-Mail: 75671.3316@compuserve.com
Studer Canada Ltd · 1947 Leslie Street, Toronto, Ontario M3B 2M3, Canada · Tel: 416 510 1347 · Fax: 416 510 1294
HHB Communications Ltd · 73-75 Scrubs Lane, London NW10 6QU, UK · Tel: 0181 962 5000 · Fax: 0181 962 5050 · E-Mail: sales@hhb.co.uk

Artists should be setting new trends. That's why when we produce, we try to avoid sampling other people's music."

Doug DeAngelis is a sought-after engineer and producer in the R&B and dance world. He has engineered mixes and remixes for Michael Jackson, Janet Jackson, Luther Vandross, Babyface, Chaka Khan and Nine Inch Nails. He recently produced new artist Miisa as well as a 12-inch mix for P.M. Dawn. DeAngelis' favorite sample libraries are "Dance/Industrial 1&2," by Dave Frangioni and Rich Mendelsen, and "Phat & Phunky" from Rich Mendelsen. He's particularly impressed with the Dance/Industrial Library Vol. 1: "It's really a good library," he says, "it mixes sound effects and samples to create a three-dimensional effect." Even with such an extensive sample CD library, DeAngelis still likes to sample obscure sounds from records and loop and layer them with other samples. He admits, "Outside of the Rich Mendelsen [libraries], the general sample library has to be tweaked a bit." Indeed, most samples incorporated in music today are samples taken from prior recordings by other artists. Portions of television programs, video games and motion picture soundtracks are also frequently used.

Though sampling is very popular within the hip hop culture, a growing number of producers in the genre are shying away from samples. Producers such as Dr. Dre and the group Dogg Pound have recent releases containing no samples at all. Al Eaton adds, "Sampling [in rap] is somewhat useless now, especially in West Coast rap. West Coast rap is simple. The majority of sample

DOUG DEANGELIS' SAMPLE TIPS

If you are one of thousands of musicians already using sample CDs, or have just bought your first sampler, here are a few tips from Doug DeAngelis: "As a producer, if I know I'm going to be using sample loops in a session, I'll begin my session with [documenting] and tweaking the loops, because they are easier to work with. Make sure you know where the samples come from and who's used them." Besides sound technicians and engineers, there are now sample producers who are re-editing loops from their own sessions or those from someone else. You don't want to use a loop only to find that the sample was taken from what is now a Top Ten hit!

Whenever using any sample, it's always best to edit it. This not only protects you from possible litigation, but can also actually help to "personalize" the loop to your composition. This can be done in many ways. If you are a Mac user, DeAngelis recommends Steinberg's ReCycle, a Mac-based sound file editor that imports samples, splits them into user-defined, individual rhythmic "Slices," assigns them individual MIDI note numbers and sends these new sound files back to the sampler, where they can then be manipulated. This program works best with a sample that has few overlapping events. You've now adapted the feel of a loop without having to record it as-is.

Programs such as ReCycle and Sound Manager are a new breed of sample file editors that are more digital audio-friendly. With a program like ReCycle, DeAngelis finds it easier to layer samples, enabling him to mask the original sample in the composition. "The way I get my sounds is primarily by layering. I never use a [single] loop." Layering also gives him more creative possibilities. "Sometimes I'll loop things from a sample groove and shift it back a beat in my sequencer," he continues, "or I'll shift it forward an 8th or 32nd note and experiment with the different syncopations. [When] you are placing these loops in layers, shifting one loop doesn't change the back beat."

If you don't have a sample editor program, there are other things DeAngelis recommends you do to customize your sample loops. "Try running your loops through an analog synthesizer, to filter out the bottom or top end. This way you can add your own kick drum or hi-hat pattern to the loop. You can also create wah-wah effects in this manner by manipulating the LFOs. This technique is particularly useful with bass and guitar." EQ and compression are also helpful in customizing a loop. Using compression, you can squeeze the instruments into sounding completely different. Then the new sound can be incorporated as part of the loop that creates your whole groove, outside the layers of MIDI sequences on top. Very few producers today like the idea of taking a bar or two from a sample loop, and DeAngelis is no exception. "I very rarely use an entire loop. To use them in segments can be much more effective." One useful technique for using an entire drum loop is as drum fill. "You can use the whole bar of a groove," DeAngelis says, "speed it up double time and insert it at the end of a phrase."

New hard-drive technology is making sample categorizing easier. DeAngelis advises the serious sample user to use a high-memory data storage medium. "For data storage, I use the Akai DR-8 hard disk recorder and Syquest drives. My Akai S1000 also has a built-in hard drive." Obviously, added data-storage space can greatly increase your personalized sample library, and access to more sounds and loops can stimulate creativity. "I have a closet full of samples and loops," DeAngelis says. "When I'm mixing live albums that involve percussion, I'm usually saving tracks. What was once a percussion break on a world-beat album could become the hi-hat on a techno record." Another benefit of new hard disk technology is that you can now sample from large libraries directly from disk. And with programs like Digidesign's SampleCell, you can preview samples before you load them into your sampler.

"The most important tip I can give someone just starting out is to study producers," DeAngelis says. "If you're a jazz student, you study jazz. If your thing is classical music, you should study classical composers. Look for and listen to the people who are best in their field."

—Christopher Patton

CDs on the market offer rhythms that are very complex."

Though Eaton himself does not use sample loop CDs, he does admit that there are those who need them. If you are unfamiliar with programming the rhythms of hip hop, setting up the groove can be frustrating. You can become more familiar by purchasing a hip hop sample loop CD and duplicating the efforts of the programmers at your own pace.

Last, but certainly not least, if you are planning to use a sample on a recording for profit, make sure that the sample library you are planning to purchase is license-free. This means that the samples from this library are not taken from a work currently under performance, recording or publishing copyright. This should be of particular interest to you, because if a sample isn't license-free, you'll have to go through the arduous task of clearing the rights to incorporate the sample in your project. According to Eaton, "There is a good chance that if you use samples that are not license-free, you can pay licensing fees beyond the cost of the CD." And this can run into a great deal of money. Eaton continues, "For major projects, a lot of companies ask for up-front cash payments of many thousands of dollars, plus points."

Many producers rarely clear samples and believe that it's the artist's responsibility to do so. DeAngelis concurs, saying, "Yes, the artist should clear any sample used, because in the end [they're] the ones who are going to collect royalties from it. Besides, in remix work [a producer] rarely has time to clear any samples." Drum sample loops are the easiest to get clearance for. While vocal samples and those that involve a single melody are sometimes a bit more difficult and expensive, by far the samples that are the hardest and most costly to clear are those from movie soundtracks. DeAngelis says his production company did a record for the Tom Tom Club where they sampled the voice of Hal from the movie *2001: A Space Odyssey*. "The recording had to be completely redone," he says, "because the record label couldn't clear it."

THE FUTURE

Though the record companies can be targeted and liable in any suit brought against them by the owner of a sample, sampling is a profitable practice, and will be around for a long time. "As a producer in dance music," DeAngelis says, "I've found that [record] labels will tell you up front not to use any samples, period. [Knowing this] you should always give the company a sample-free track. I've done records with samples in them that haven't seen the light of day. If you're smart, you'll clear them when the project is young." With the appetite record buyers have for new sounds and innovations, it's inconceivable that the recording industry will drop this recording technique from its repertoire anytime soon. "Already, we are seeing some publishers and record companies who are aggressively marketing their catalogs for sampling purposes," says author Michael Ashbourne, "which may lead to better deals and less paperwork. At present, the high administrative and legal costs of sampling often reduce the profitability of the practice. However, if licensing can be streamlined and master license fees reduced, the practice may prove to have surprising longevity." ■

DON'T THINK YOU CAN GET AWAY WITH INCLUDING A NON-CLEARED SAMPLE BY PLACING IT LOW IN YOUR MIX. THERE ARE PUBLISHERS AND THEIR STAFFS WHO ROUTINELY LISTEN TO NEW RECORDS FOR SAMPLES OF THEIR COPYRIGHTS.

Chris Patton is owner/operator of Ars Nova Productions, a MIDI pre-production studio in Oakland, Calif.

GLOBAL WARMING

The Only Analog Tape Saturation Processor For Digital Recording.

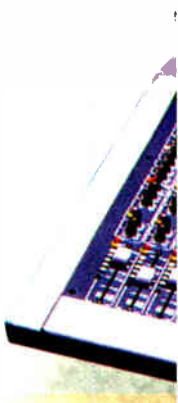
While we at RSP Technologies can't take all the blame for recent warming trends, we will accept our share, thanks to our new Saturator™. The world's first product designed to provide tube warmth for digital recording, the Saturator brings the analog tape "saturation" process to the digital domain, warming up digital tracks and putting an end to "brittle" audio. Nothing works like the Saturator's patent pending process to recreate the classic saturation curves of hotter signal level analog recording, while allowing you to retain the benefits of the digital medium. Select the required saturation, from just a hint to soften digital high end, to the massive amounts typical to needle-pinned rock and roll, and yet maintain the clarity and detail of your original digital recording. Get ready to saturate, and don't say we didn't warm you. You'll find the Saturator at your RSP Technologies dealer; it's the store with the bright glow coming from the windows.

RSP Technologies

2870 Technology Drive · Rochester Hills, Michigan 48309 · 810 / 853 · 3055

Ten Under Seven

by Dominick J. Fontana



A Look at Ten Analog 8-Bus In-Line Mixers Priced Below $7,000

Today's affordable 8-bus recording mixers offer features and sound quality unavailable even a few short years ago. This article describes a selection of analog 8-bus in-line recording mixers available for under $7,000 MSRP; many of the mixers list for under $5,000. Though we have included some mixers that list for more than $7,000 in larger configurations, smaller configurations fall within the price bracket. We have not included digital mixers, and we excluded split (*non*-in-line) consoles—such as the Studiomaster Mixdown Classic or the Soundcraft Spirit 8—which use a separate monitoring section.

INPUT/OUTPUT SECTION

The mixers we researched are available in at least one of 16-, 24-, 32- and 40-channel configurations. Each channel may have both an XLR mic input and a ¼-inch line input, normally routed through the channel (referred to as the Channel or Main Mix). A separate ¼-inch input can be used for tape returns or for any other line input, and is routed to the monitor section; this signal path is often referred to as the Monitor Mix or Mix B. We will refer to the separate input paths as channel and monitor, respectively. The channel section always has more features than the monitor section so manufacturers have devised different methods to allow you to use some of the channel features in the monitor sections.

Insert jacks for the channels, the L/R mix and the groups are usually used for outboard compression and EQ. Inserts allow you to process a signal with outboard devices and return the processed signal to the same channel or group.

All the mixers surveyed are analog 8-bus in-line recording mixers. The in-line format allows for at least twice as many inputs as the number of channels during mixdown. Most of the mixers use some form of multiple busing scheme for the group outs.

During mixdown, you will want to route your tape tracks through the channel faders. Rather than repatch, you can use the flip switch, which simply routes the mic or line input to the monitor path, and the tape input to the channel path. So, with a 24-channel mixer and a 24-track tape machine (or three 8-track digital multitracks), you would connect the 24 tape outputs to the 24 monitor inputs on the mixer. You would listen to the tape tracks through the monitor section or aux section and use the channel inputs for the mic or line sources, during tracking and overdubbing. At mixdown, you simply press the flip switch and mix recorded tape tracks through the main channel strip; the mic/line inputs would then be available (through the monitor section) for virtual MIDI tracks or other inputs.

When recording, it is possible either to assign a channel to a group out or use a "direct" out. It used to be the case that, since there are only eight group buses, you could record on no more than eight different tape tracks without repatching if you used a group out. If you used a direct out, you could record on as many tracks as there were mixer channels, but you could only record one channel at a time on a track, and you had to use the same numbered channel as the number of the target tape track. Also, in the past, you couldn't connect both your group outs and all your direct outs to your tape inputs at the same time.

Almost all of the mixers described here solve this problem by using multiple busing schemes: the direct outputs double as the group outputs, and the eight group outputs are repeated for every eight direct outputs. So, on a 32-channel mixer you would have 32 direct outs. These would be connected to the tape ins on your multitrack recorder. In Direct Out mode, each channel of the mixer would feed the correspondingly numbered tape track. However, when the appropriate switch is pressed, direct outs 1-8 carry the signal from group outs 1-8. Similarly, direct outs 9-16 would also carry group outs 1-8, as would direct outs 17-24 and 25-32. So each group output would appear at four different mixer outputs. This feature allows you to record from any mixer channel, or channels, to any tape track and still use your direct outputs, without repatching.

EQUALIZATION

On an in-line console, the EQ can sometimes be split between the channel and the monitor; this is known as "splittable EQ." Generally, EQ includes high and low shelving, as well as sweepable mid-band EQ. One mixer also offers true parametric EQ with variable Q (bandwidth); others offer low-cut filters and EQ defeat. A common configuration is high/low shelving and two sweepable mids, with the high/low EQ being splittable between the channel and the monitor. Some mixers don't allow the EQ to be split, while one allows you to split either the shelving or the sweepable mids separately. Still others have dedicated shelving EQ for the monitor section.

AUX SENDS

As with EQ, the aux sends are splittable between the channel and the monitor.

Intelligent, beautiful, complete with *Image Recall*...
It was a match made in Heaven.
Finally, he'd found the console of his dreams.

★★★★
STATUS • Capture all console input module settings with the touch of a button.

★★★
STATUS • User-defined master status switching for instant changes of routing setups.

★★★★
STATUS • Digitally controlled dual input architecture for music and post-production.

ProMix™ lets you edit [illegible] format surround sound mixes and painting to your STATUS

AN
OTARI®
PRODUCTION

Otari Corporation U.S.A.
Phone: (415) 341-5900, Fax: (415) 341-7200
L.A. Sales: (818) 972-3687, S.E. Sales: (615) 255-6080

Otari Inc. Japan
Phone: (81) 4-2481-8633, Fax: (81) 4-2481-8633

Otari Deutschland GmbH Germany
Phone: [illegible], Fax: (49) 2159-1778

Otari Singapore Pte., Ltd.
Phone: [illegible] 284-7211, Fax: [illegible] 284-4720

ProMix is a trademark of TD Systems, Inc.
©1995 Otari Corporation

Luv Mixin and STATUS
star in

STUDIO LOVE AFFAIR

STATUS comes with ★IMAGE RECALL, ★SNAPSHOTS, ★A SOPHISTICATED 4-BAND EQ, ★VCA AUTOMATION, ★USER PRESETS and ★PROGRAMMABLE SOFT KEYS.

team ★

Get it with DYNAMICS, MOVING FADERS, STEREO MODULES! Call your Otari dealer or 415-341-5900 about the smarter desk!
And don't forget to ask for a large poster of this ad!

Typically, pre-fader sends are used as cue sends for the musicians, and post-fader sends are used as effects sends. Differentiating features include the number of aux sends, whether they are pre or post, mono or stereo, and whether they can be used with the channel, the monitor or both. To save cost and space, some mixers do not allow you to use all sends simultaneously. For instance, a mixer may be advertised as having six aux sends, but you can only use four of them simultaneously.

An aux send may be dedicated pre or post, or it may be switchable to either. Dedicated pre-fader sends are usually not useful at mixdown; conversely, dedicated post-fader sends are not usually used as a headphone cue mix (since any changes in the record level or control room monitoring balance will affect the artist's headphone mix). In general, a minimum requirement is one pre-fader send for the channel and one for the monitor to provide cue sends during tracking and overdubbing. At mixdown, you will probably want as many post-fader sends as you can get and will want to be able to split them between the channel and the monitor.

MONITOR SECTION

All of the mixers listed have a monitor level control and a monitor pan control. Some of the other available features are monitor mute and solo, monitor overload LED and a secondary monitor input source. For instance, the monitor usually gets its input from either the monitor input jack, or from a channel mic/line jack when the flip switch is pressed. However, some mixers also allow the monitor to get its input from the channel path, either pre-fader or post-fader. A pre-fader channel input allows the monitor to be used as an additional stereo cue send for the channel. A post-fader channel input allows the monitor to be used as an additional stereo effects send for the channel.

CHANNEL SECTION

All of the mixers have a 100mm long-throw fader (though the feel varies considerably on the different mixers), a channel pan control, assignment switches for the eight groups and the L/R bus, a channel overload LED, a channel mute and a channel solo. Solo-In-Place (SIP) allows you to hear a soloed channel in its stereo perspective. Without SIP all signals will be summed to mono on the Solo bus.

GROUP SECTION

Aux masters set the master level of each aux send bus. There should ideally be one master for each aux send. Look for Aux Mute and Aux Solo switches.

Usually, you have the same number of **effects returns** as you have aux sends, but the more the better, because they can also be used as extra line inputs. All of the mixers have effects returns level controls, on either rotary pots or 60mm faders. Effects returns may be mono or stereo, and may include pan controls, trim controls, EQ, Effects Mute, Effects Solo, and Effects Routing. All mixers allow for routing the return signal to the L/R mix bus. Some mixers also allow you to route the signal to any of the groups, although others only allow you to route it to its local group. For instance, return 1 can only be routed to groups 1/2; return 2 can only be routed to groups 3/4, etc. This can be inconvenient when you want to record effects while tracking and overdubbing. Also see if the return can be routed to one or more aux buses or if there is a dedicated Aux Send knob. This will allow you to record dry while monitoring the wet signal by means of the aux bus.

All of the mixers have eight 100mm long-throw faders for the eight **group outputs**. Also look for group routing to the L/R mix bus, group solos and group mutes.

MASTER SECTION

All of the mixers have an LED that indicates when any **solo** button on the board is depressed. Most, but not all, of the mixers also have a master level control for the solo section on a rotary pot. The solo can either be Solo-In-Place or mono and can be pre-fade listen (PFL) or after-fade listen (AFL).

Some of the mixers have a **monitor master level control** on a rotary pot. Some mixers always route the monitor mix to the L/R bus; others allow you to keep the monitor mix separate or route it to the L/R bus as needed. Some mixers offer Monitor L/R output jacks, so you can send the monitor mix signal to external devices.

All but two of the mixers have **studio L/R output jacks**. These usually feed a headphone amp or power amp in the studio. All of them allow you to control the level to the studio with a rotary pot, but check to see if you can set the level independently of the control room level. The usual kinds of signals that you can monitor are the L/R mix, monitor mix, control room mix and various aux mixes.

All of the mixers have at least one pair of **control room L/R output jacks**. These usually feed a power amp that is connected to your control room speakers. All of the mixers allow you to control the level to the control room with a rotary pot, but check to see if you can set the level independently of the studio level. Other features include a Mono switch, a Mute switch and choice of two different sets of speakers.

Most of the mixers have a **talkback section,** and of those that do, all but one include a built-in microphone. An additional feature is a built-in test tone oscillator.

All of the mixers have 100mm long-throw **master faders**. However, some mixers use one fader for both L/R, and others have two faders. Two faders allow you to adjust for imbalances between the L/R levels but can make it difficult to execute a fade while maintaining an accurate center image.

MISCELLANEOUS FEATURES

Headphone jacks fed by a separate headphone-level control usually carry the control room signal, independent from the signal sent to the headphones in the studio. Also, look for provisions for connecting one or two 2-track tape decks, or other external source, such as a DAT machine, a cassette deck and/or a CD player. Some mixers only allow you to play back the tape decks, while others also allow you to dub between them. Some mixers have scribble strips; BNC lamp sockets; signal-present indicators; Aux Sum switches; MIDI In, Out, and Thru jacks; MIDI Machine Control; Mute groups; and Solo Safe. Several mixers are expandable.

OPTIONS

All of the mixers come standard with ten LED meters: eight for the Groups and two for the L/R mix. The L/R meters usually double as the meters for the solo bus. However, some of the mixers also offer an optional **meter bridge**. All of the optional bridges have an LED meter for each channel plus two VU meters for the L/R bus. Some of the bridges also allow you to select the meter display source.

Some of the mixers have **MIDI mute automation** built in and some offer it as an option in a hardware/software package for the PC, Mac or Atari ST. None of the mixers offers software for the Amiga.

None of the mixers offers moving-

8-BUS CONSOLES: FEATURES AT A GLANCE

MANUFACTURER	ALLEN & HEATH	MACKIE DESIGNS	PEAVEY	SOUNDCRAFT SPIRIT
Phone No.	(801) 568-7660	(800) 898-3211	(601) 483-5365	(916) 888-0488
Model Name/No.	GS3/GS3V	Mackie 8-Bus	2482	Spirit Studio/Auto
CHANNEL:				
No. of Channels	16,24,32	16,24,32	24	16,24,32
Mic-Line switch/Pad	Y/N	Y/N	Y/Y	Y/N
Phantom Power	Individual	Grps. of 8	Individual	Individual
Flip	Y	Y	N	Y
Phase	N	N	Y	N
EQ Bands per Channel	3	4	4	4
Shelving EQ	1 (Hi)	2 (Hi-Lo)	2 (Hi-Lo)	2 (Hi/Lo)
Sweepable EQ	2 (Mid-Lo)	2 (Mids) *A	2 (Mids)	2 (Mids)
Hi-Lo Split	N	Y	Y	Y
Dedicated Mon. EQ	Y	N	N	N
EQ Defeat	Y	Y	Y	N
EQ Other	-	Low Cut	Low Cut	-
Aux Sends available	6	4 of 6	4 of 6	6
Aux Format	2 Pre/4 Post	4 Pre/Post	2 Pre-Post/2 Pre	2 Pre/4 Post
Aux Splittable	Y (2 Post)	Y (2 Pre/Post)	Y (2 Pre)	Y (2 Post)
Pre/Post sends from Ch.	1/4	4/4	4/2	1/4
Pre/Post sends from Mon.	1/2	2/2	2/0	1/2
Extra Mon. Source	N	Y (Pre-fader)	Y (Post-fader)	N
Mon. Mute/Solo	Y/Y	N/N	N/N	Y/Y
Solo-in-Place	Y	Y	Y	N
Peak LED for Ch./Mon.	Y/N	Y/N	Y/N	Y/Y
GROUP:				
Aux Masters	5	6	8	6
Aux Solo/Mute	Y/Y	Y/N	N/N	Y/N
Group Routing	Pair to L-R	Gr./Pair L-R	Group to L-R w/pan	Pair L-R/Mono
Gr. Solo/Mute	Y/N	Y/N	Y/N	Y/N
MASTER:				
Stereo FX Ret.	4	6	8	4
FX Pans	4	2	8	4
FX Routing	Groups/L-R	*B	Groups/L-R	Local Gr./L-R
FX Solo/Mute	Y/Y	Y/N	Y/Y	Y/N
FX Other	Gain, EQ, Cue	-	EQ, Aux, Fader	Trim, Cue, EQ
Master Monitor	N	Y	Y *D	N
Solo LED/Level	Y/N	Y/Y	Y/Y	Y/Y
Studio Monitor	Y	Y *C	Y	Y
Mono/CR Phones Level	Y/Y (Shared)	Y/N	Y/Y	Y/Y (Shared)
Talkback/Osc.	Y/Y	Y/N	Y/N	Y/Y
2 Tapes Playback/Dubbing	Y/Y	Y/N	Y/N	N/N
2 sets of Speakers	Y	N	Y	N
L/R Fader(s)	2 (1 on GS3V)	1	2	1
+4/-10 Switches	N	Y (External)	N (See text)	N (See text)
Meter Segments	10	12 plus Clip	12	16
Jacks location	Top	Top/Back	Top	Top
Inserts	Chs./Grs./L-R	Chs./Grs./L-R	Chs./L-R	Chs./Grs./L-R
Direct Outs	Y (Combined)	Y (Separate)	Y (Separate)	Y (Combined)
Group Outs	Y (Combined)	Y (Separate)	Y (8)	Y (Combined)
Multiple Bussing	Y (Up to 4x)	Y (Up to 3x)	N	Y (Up to 4x)
Mon. L/R Outs	N	Y	Y	N
Meter Bridge	N	Optional	Optional *E	N
Mute Automation	Y	Optional	N	Y (Auto only)
VCA Fader Automation	Y (GS3V only)	Optional	N	Y (Auto only)
Model Name/No.	GS3/GS3V	Mackie 8-Bus	2482	Spirit Studio/Auto
MSRP (all figures in dollars)				
16-channel	4495/6495	3197		2999/3999
24-channel	6495/8995	3995	4999	3799/5999
32-channel		4995		4599/7999
8-channel expander	1995/2595			
24-channel expander		2995		
16-, 24-, 32-meter bridge		695/795/895	- /1499/ -	
32-Ch. VCA/mute Automation		2500		

NOTES:

General: All of the mixers have: input gain control; channel pan and assignment to Groups and L/R Mix; channel mute and solo; monitor level and pan; control room monitor section; at least one headphone jack; 100mm long-throw faders for the channels, groups, and L/R mix; input jacks for tape/monitor inputs on every channel; and LED meters for the 8 Groups and the L/R bus. All of the mixers except the Yamaha RM800 have XLR and 1/4" input jacks for every channel.

A: Has bandwidth (Q) control for one mid-band EQ.

B: Two returns are assignable to all groups and L/R mix. Two are assignable to phones 1, phones 2, and L/R mix. Two are assignable only to L/R mix.

C: The Mackie s studio outputs are meant to be connected to a power amp/speaker setup in the studio and carry the same signal as the control room outputs, but with independent level control. For studio monitoring, there are two independent phones sections with level controls and two phones jacks that can also be connected to headphone amps. However, there is no dedicated headphone jack for the control room signal.

D: Has monitor master solo, mute, and bi-color LED.

E: Meter bridge can be used with any mixer and is not specific to the 2482.

F: One dedicated pre-fader send for channel and 1 dedicated pre-fader send for monitor. Two post-fader sends are individually splittable between channel and monitor and

SOUNDTRACS	STUDIOMASTER	TASCAM	YAMAHA
(800) 372-6766	(714) 524-2227	(213) 726-0303	(714) 522-9011
Topaz Project 8	Studiomaster P7	M-2600 MkII	RM800
24,32	16,24,32,40 *J	16,24,32	16,24
N/N	Y/Y	Y/Y	Y/Y *K
Individual	Individual	Groups of 8	Global
Y	Y	Y	Y *L
Y	N	N	N
4	4	4	3
2 (Hi/Lo)	2 (Hi/Lo)	2 (Hi-Lo)	2 (Hi-Lo)
2 (Mids)	2 (Mids)	2 (Mids)	1 (Mid)
N	Y	Y (also splits Sweep)	N
Y	N	N	N
Y	Y	Y	Y
-	-	-	-
4 of 6	6	6 (2 stereo/4 mono)	4 *M
2 Pre/2 Post	2 Pre/4 Post	2 st. Pre-Post/4 mono Post	4 Post
Y (2 Post) *F	Y (2 Post)	Y (2 Post)	Y (1 Post)
1/2	1/4	1 st./1 st.-4 mono	0/4 *M
1/2	1/2	1 st./1 st.-2 mono	0/1
N	N	N	Y (Pre-Fader)
Y/Y	Y/Y	Y/N	N/N
N	Y	Y	N
Y/N	Y/N	Y/Y	Y/N
6	6	6 (2 stereo/4 mono)	4
Y/N	Y (4)/Y (2)	Y/N	N/N
Gr/Pr L-R/Mono	Pair to L/R	Pair to L/R	N
Y/N	Y/N	Y/Y	Y/N *N
4	4	6	4
4	4	6	4
Local Gr./L-R	Groups/L-R	Groups/L-R	Groups/L-R
Y/N	N/N	Y/N	N/N
-	EQ, Aux 6	Cue	Aux 5-6
Y	N	N	Y
Y/Y	Y/Y	Y/Y	Y/N
Y	N (Uses Aux 5-6)	Y (Same as CR)	N
Y/Y	N/Y	Y/Y (2)	N/Y
Y (No Mic)/N	Y/Y	Y/N	N/N
Y/N	Y/Y	Y/N	N/N
Y	Y	N	N
2	2	1	1 w/mute *N
Y (Internal)	N	Y (External)	Y *O
10	16	12 plus clip	10 plus clip
Back	Top	Back	Top
Chs./Grs./L-R	Chs./Grs./L-R	Chs./Grs./L-R	8 Chs./2 Grs./L-R
Y (Combined)	Y (Combined)	Y (Combined)	Y (8-Combined)
Y (Combined) *G	Y (Combined)	Y (Combined)	Y (Comb. & Separate) *O
Y (Up to 4x) *H	Y (Only up to 2x)	Y (Up to 4x)	Y (Up to 2x)
Y	N	N	Y
Optional	Optional	Optional	N
Optional *I	Y (100 Scenes)	N	N
Optional *I	N	N	N
Topaz Project 8	Studiomaster P7	M-2600 MkII	RM800
3995	4295	3199	1699
4995	5945	3999	2399
	7595 (40-ch. 9245)	4999	
	1650		
- /849/949	895/1095/1295 (40-ch. 1495)	849/999/1199	
2500			

individually splittable between Aux 3/5 and Aux 4/6.

G: Besides combining the direct out and group out jacks on each channel, the Topaz also has 8 separate group out jacks.

H: The Topaz uses a "floating group" method. The tape out jack for each channel normally functions as a direct out and every channel has a Bus button numbered from 1 to 8. If you press the Bus button on channel X, then any channels assigned to channel X's Bus number will appear at Channel X's tape output, as well as appearing at the separate group out jack.

I: The VCA Fader/Mute hardware and software is sold together. The hardware plugs into the automation ports built into the Topaz, so you do not have to use the insert jacks.

J: Start with 16-channel unit and add 8 channels at a time, up to 40 channels, with the 8-channel expansion unit. However, meter bridge is not available in 8-channel version.

K: Has only 1 input per channel for both mic and line, together with Mic-Line/Tape switch.

L: Since both the channels and the monitors have a Mic-Line/Tape switch, these effectively allow you to flip the inputs to the channels and monitors.

M: Monitor section also doubles as Aux 5-6, providing a stereo pre-fader cue send from the channel.

N: No LEDs on any mutes or solos.

O: Eight tape inputs have external +4/-10 switches. One set of 8 group outputs at +4, one set of 8 group outputs at -10, and one set of 8 group/direct outputs at -10.

fader automation. However, some of the mixers have **VCA fader automation** built in, and others offer it as an option in a hardware/software package for the PC, Mac or Atari ST. Note that all mixers that offer optional automation using a computer include both VCA fader and MIDI mute automation. If you buy the optional automation, you get both types. However, even if a mixer doesn't have built-in automation and doesn't sell its own automation package, you can still take advantage of third-party automation products by using the insert jacks on the mixer.

CONSOLE DESCRIPTIONS, PROS AND CONS

Following are brief descriptions of the surveyed mixers. Additional information is contained in the chart on pages 88-89, which allows for feature-by-feature comparison.

ALLEN & HEATH GS3/GS3V

Both the GS3 and GS3V are available in 16- or 24-channel formats; an 8-channel expander allows for a maximum of 32 channels. The GS3V is the same as the GS3, but with the addition of built-in VCA fader automation and only one L R fader (automated). Onboard automation facilities are elaborate. No external computer is required for the automation, but software to monitor the automation is available for the Atari ST.

What we liked: Built-in VCA fader automation (GS3V only), mute automation, and seven MIDI function keys (both models). Individual phantom power, flip switch, dedicated two-band EQ for monitor, monitor mute and solo; dedicated cue sends for channel and monitor, plus four discrete effects sends; EQ defeat; aux send masters have mute and solo; elaborate effects returns; dual-frequency oscillator; 2-track tape dubbing and playback; two control room speaker outputs with mute; Solo-In-Place. Scribble strip on bottom.

What we didn't like: Uses dual-concentric controls for monitor level/pan, aux sends 1/2 and 3/4, and sweepable EQ. Only 3-band EQ for channel. No monitor master section, no solo level control, no separate headphone level control, and no optional meter bridge.

MACKIE 8•BUS SERIES

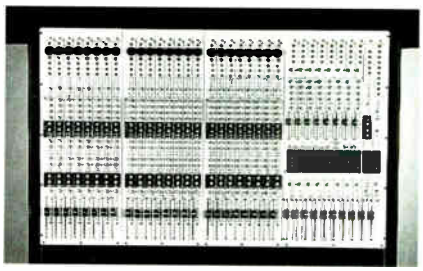
Available in 16-, 24- and 32-channel formats. The 24- and 32-channel versions can be expanded 24 channels at a time. Optional meter bridge for all models and for the expander unit, with input buttons to select Tape Return or Channel Strip metering. The meter bridge features 12-segment LEDs for the channels and two VU meters for the L/R mix.

What we liked: Flip switch. Four-band channel EQ with true parametric high-mid, low cut filter, EQ defeat and splittable shelving EQ. Alternate input source for monitor section. Signal-present LED on channel. Six stereo effects returns. Monitor master section. Two independent phones sections. Two-track playback for two decks. Solo-in-place. Two stereo outputs. External +4/-10 switches for tape outputs and returns. BNC lamp sockets. Expander port. Optional meter bridge. VCA fader/mute automation with Macintosh software and External Fader Pack, mixer stand and rack unit.

What we didn't like: Phantom power switchable in groups of eight. Mic/Line switch in awkward position. Aux section is above EQ section in channel strip. No headphone jack for control room. Only 24 group outs (triple busing) on 32-channel model. No monitor mute or solo. Not all solo buttons have individual LEDs. Not all effects returns are full-featured. Mackie does not combine its group outs and direct outs, as all but one of the other mixers do, forcing you to repatch when you want to switch from group outs to direct outs and back again. Automation is connected through insert jacks.

PEAVEY/AUDIO MEDIA RESEARCH 2482

Only available in 24-channel version. Tape returns have both TRS ¼-inch +4 and RCA -10 input jacks. Optional Delta VU 24 meter bridge can be used with



any mixer and does not physically attach to the 2482. No automation. If used with third-party automation, faders were designed to be removed and replaced with moving faders.

What we liked: Totally modular construction. Individual phantom power. Phase reverse. Two sets of monitor/tape input jacks. Low cut filter. EQ defeat. Alternate input source for monitor section. Comprehensive monitor master section. Liberal use of bi-color LEDs for signal-present and overload. Eight comprehensive stereo effects returns. Solo-In-Place. Two control room speaker outputs. Meters simultaneously display peak and VU levels.

What we didn't like: Mixer only comes in 24-channel version and is not expandable. No flip switch. No multiple busing. Group Out and Direct Out jacks not combined. No post-fader sends for monitor. No monitor mute or solo. No group inserts. No aux send master solos. No external +4/-10 switches for group outputs. Optional meter bridge is not specifically designed for the 2482 mixer and does not attach to it. No optional VCA fader/mute automation.

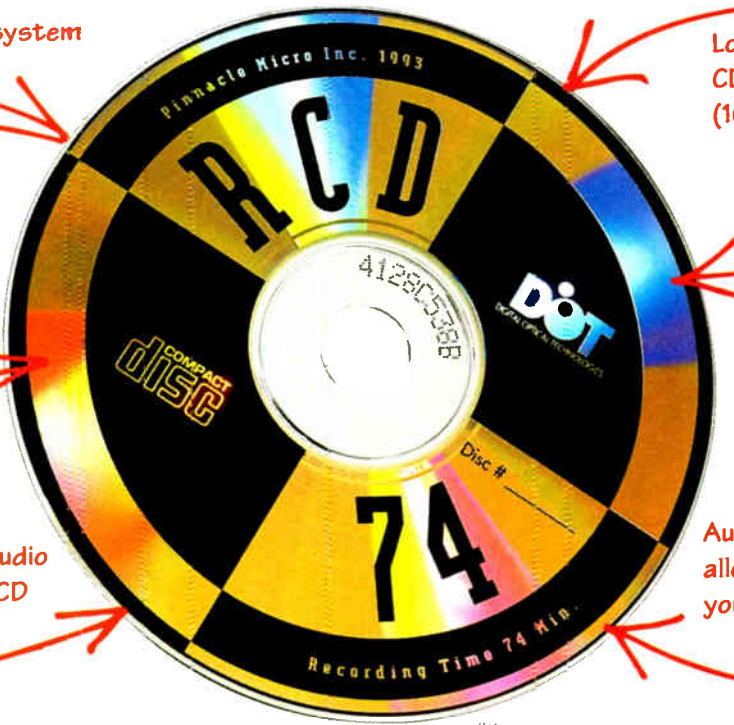
SOUNDCRAFT SPIRIT STUDIO/SPIRIT AUTO

Both are available in 16-, 24- and 32-channel formats. Individual gain for channel and monitor allows monitor/tape inputs to accept +4 and -10 levels. The Spirit Auto is identical to Spirit Studio, but includes: VCA fader and mute automation; MIDI In, Out and Thru ports; snapshot button with LED; protocol switch; and MIDI channel selection switch. The automation will work with any software or hardware sequencer but is optimized to work with Steinberg's Spirit automation software for the Atari ST or JL Cooper automa-

MAKE YOUR OWN CDs!

#1 Selling Recordable CD system

Low-cost Recordable CD media only $15 (100 year shelf life)



650 MB/74 min Recordable disc

Easy to use software- make CDs within minutes

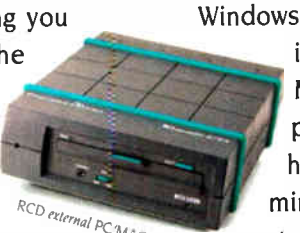
Recordable CD media readable on most CD players

Store 74 minutes of audio sound tracks on each CD

Audio editing application allows you to mix & master your own custom CDs

Recordable CD System Only $995*

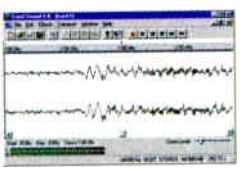
Pinnacle's new Recordable CD system is the first CD Recorder priced below $1000 - making it the most popular and affordable system available. This system can create custom data, audio and video CDs within minutes and it's also a fully functional CD-ROM player. The system comes complete with everything you need to produce your own CDs, including the CD recorder, controller card, cables, and software to make it all happen.



RCD external PC/MAC $1295

Pinnacle's unique audio editing approach will allow you to professionally mix and master custom audio CDs easily and quickly. The RCD system is available in both an internal and external model. The internal model fits into most PC computer bay slots. The external model comes in a stylish case that connects directly to your PC or Macintosh computer.

*RCD internal PC $995



Audio Editing Application

Computer System Requirements

PC: IBM or compatible with 486 processor, 8 MB RAM, hard disk access time of 12 ms or better, mimimum sustained data transfer rate of 800 KBs, MS DOS 6.2 with Windows 3.1, Windows for Workgroups 3.11, Windows NT or Windows 95, one open 16 bit ISA interface card slot.

MAC: Macintosh or compatible with 68040 processor, System 7.0 or later, 8 MB RAM, hard disk access time of 12 ms or better, minimum sustained data transfer rate of 800 KBs.

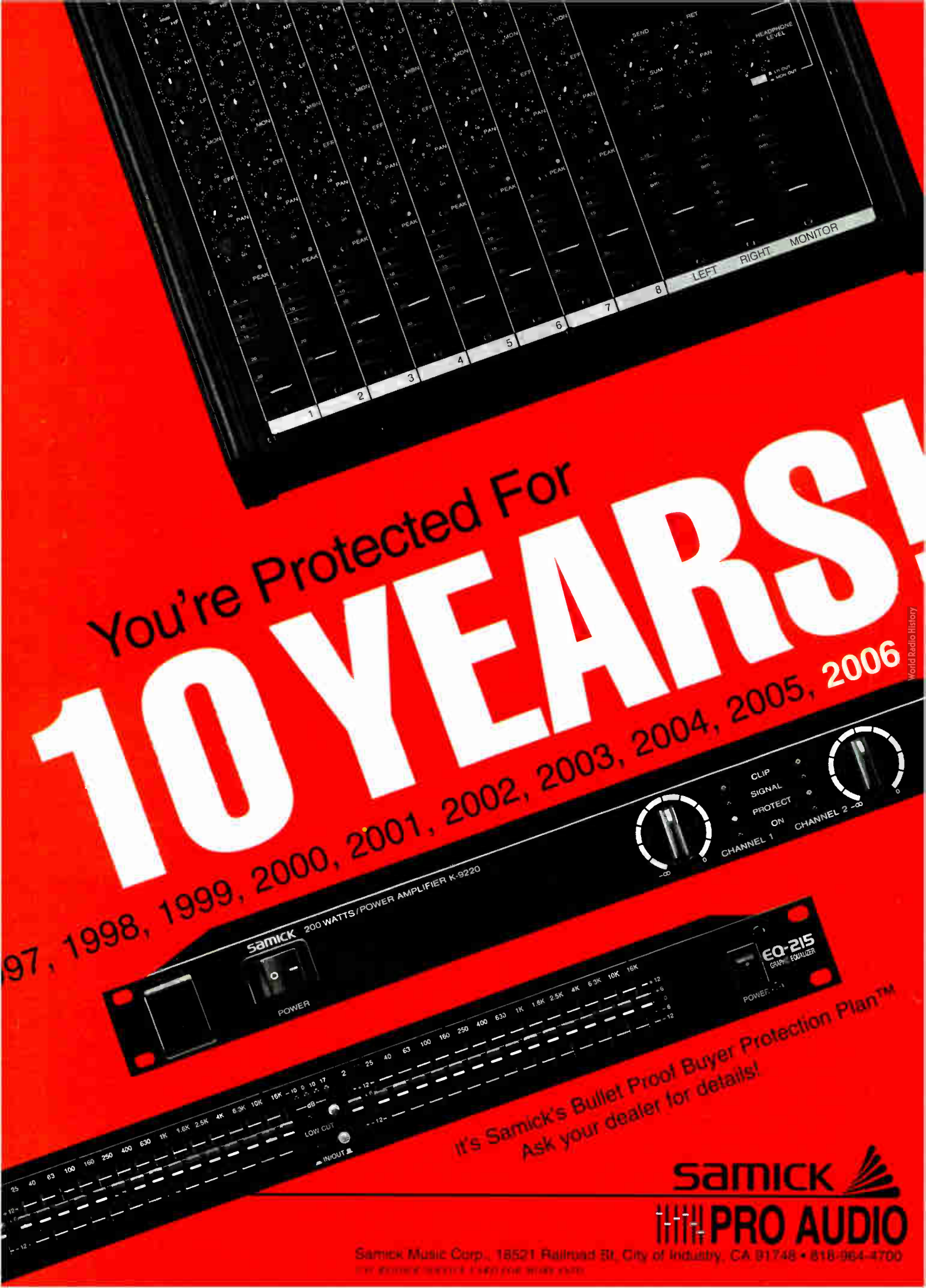
Pinnacle Micro is the world's leader in Recordable CD systems. Best of all, it's now affordable - it's recordable. To order or for a local dealer call: **800.553.7070**

Call to receive your free Guide To Compact Disc Recordable (CD-R)

PINNACLE MICRO
THE OPTICAL STORAGE COMPANY

Tel: 714-789-3000 Fax: 714-789-3150

http://www.pinnaclemicro.com


You're Protected For
10YEARS!
97, 1998, 1999, 2000, 2001, 2002, 2003, 2004, 2005, 2006
World Radio History
samick 200 WATTS/POWER AMPLIFIER K-9220
POWER
CLIP
SIGNAL
PROTECT
ON
CHANNEL 1
CHANNEL 2
EQ-215
GRAPHIC EQUALIZER
LOW CUT
IN/OUT
It's Samick's Bullet Proof Buyer Protection Plan™
Ask your dealer for details!
samick
PRO AUDIO
Samick Music Corp., 18521 Railroad St, City of Industry, CA 91748 • 818-964-4700

tion software for the Mac. Although the automation hardware is built in, and automation settings can be recorded or edited either from the mixer or from software, you must use an outboard software/hardware sequencer or Steinberg's or JL Cooper's computer software to use the automation.

What we liked: Built-in VCA fader/mute automation (Spirit Auto only). Individual phantom power. Individual gain for channel and monitor inputs. Flip switch. Dedicated cue sends for channel and monitor, plus four discrete effects sends. Monitor mute, solo and overload LED. Fairly comprehensive stereo effects returns. Dual frequency oscillator. Scribble strip on top and bottom.

What we didn't like: No EQ defeat. Effects returns are only assignable to L/R mix and their local group. No monitor master section. No separate studio monitor section (instead uses channel and monitor Foldback Master sends). Control room and headphones use the same level control. No Solo-In-Place. No external +4/-10 switches for tape outputs. No optional meter bridge. Must use sequencer or dedicated automation software in order to use the built-in automation of the Spirit Auto.

SOUNDTRACS TOPAZ PROJECT 8

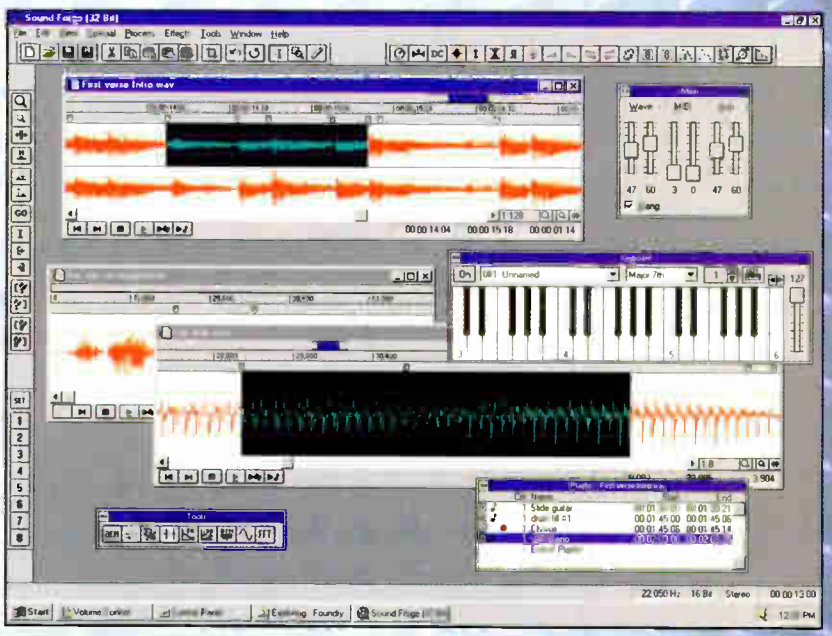
A new model replacing the previous Topaz mixer, the Project 8 is available in 24- and 32-channel formats. The changes between the two mixers are largely cosmetic—color of the mixer, color and shape of the knobs, and appearance of the meters. However, the new knobs have a much tighter feel than the original Topaz. Topaz Project 8 comes automation-ready with plug-in automation ports built into the mixer and offers an optional meter bridge.

What we liked: Individual phantom power. Phase reverse. Flip switch. Unique floating groups, plus eight dedicated group outs. Four-band EQ for channel with EQ defeat, plus dedicated shelving EQ for monitor. Monitor mute and solo. Monitor master section. Extensive studio and control room monitoring sections. Two-track playback for

We've Strengthened Our Cast

Sonic Foundry's Sound Forge™ 3.0, full-featured sound editing intended for musicians, sound designers, and multimedia developers using the Windows™ platform. Sound Forge offers editing, audio-processing effects, creation of loops and regions, and generation of playlists. An expandable plug-in architecture tailors Sound Forge to any application. Both a 16 Bit version (Windows 3.1 or Windows for Workgroups™ 3.11) version and a 32 Bit version (Windows 95 or Windows NT™) are included.

1995 EC NOMINEE

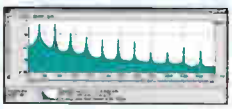


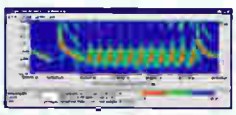
Noise Reduction Plug-in

Now there's no need to slave away filtering noisy recordings. Sonic Foundry's Noise Reduction plug-in is designed to automatically remove background noise such as tape hiss and electrical hum. Click Removal is also included, allowing you to eliminate clicks and pops automatically.

Spectrum Analysis Plug-in

And if you need to identify that particular frequency component, you'll find the Spectrum Analysis plug-in a great addition.





Spectrum Analysis includes Spectrum Graph and Sonogram display for easy frequency (or pitch) identification.

Batch Converter Plug-in

The Sonic Foundry Batch Converter Plug-in is a time saving utility for those needing to convert tens, hundreds, or even thousands of sound files to different formats automatically. All plug-ins require Sound Forge 3.0.

Sound Forge XP

MULTIMEDIA WORLD ALL-STAR

Sound Forge XP, a general purpose sound editor, provides the same easy to use interface found in the professional edition. Sound Forge XP is intended for sound designers, multimedia developers, and hobbyists requiring a powerful yet affordable sound editor.

For more information call Sonic Foundry at 1 800 57 SONIC (577 6642)

SONIC FOUNDRY

100 South Baldwin, Suite 204, Madison, WI 53703, Tel: (608) 256 3133 Fax: (608) 256 7300
Web: http://www.sfoundry.com, CompuServe: 74774,1340 or GO SONIC, Internet: sales@sfoundry.com.

two decks. Two control room speaker outs. Comprehensive talkback section. All mute and solo switches are illuminated. On 32-channel model, master section is near middle of mixer. Scribble strip on top and bottom. Optional meter bridge; optional VCA fader/mute automation with PC software.

What we didn't like: Limited aux section with only two post-fader sends available for channel or monitor simultaneously. Stereo effects returns only have assignment to local groups and L R mix. No Solo-In-Place. Talkback mic is not built-in. Internal jumpers to select +4/-10 levels for tape ins and tape outs.

STUDIOMASTER P7

Available in 16-, 24-, 32- and 40-channel formats, expandable eight channels at a time. The Studiomaster offers the largest configuration, at 40 channels, and has mute grouping and a security system. Also offers 4-band EQ with Hi/Lo EQ splittable to monitor and four stereo effects returns with 2-band EQ, aux 6, and full assignment capabilities.

What we liked: Individual phantom power. Flip switch. EQ defeat. Dedicated cue sends for channel and monitor, plus four discrete effects sends. Monitor mute and solo. Comprehensive stereo effects returns. Dual frequency oscillator. Two-track playback for two decks. Two-track tape dubbing. Two control room speaker outputs. Solo-in-place with solo safe. Four Mute Groups. Security system. Master section is centrally located. Scribble strip on bottom. Totally modular construction. Built-in mute automation. Optional meter bridge features 16-segment LEDs for the channels and two VU meters for the L R mix.

What we didn't like: Only has double busing. No monitor master section. No separate studio monitor section. No mono switch. No center detents for EQ or pans. No external +4/-10 switches for tape outputs and returns. Meter bridge uses insert jacks. No VCA fader automation.

TASCAM M-2600 MKII

The Tascam M-2600 MkII replaces the original M-2600 mixer and is available in 16-, 24- and 32-channel formats. It has all the features of the original M-2600 but adds switchable +4/-10 levels for tape in and group/direct outs, increased range on the trim control, improved EQ, ¼-inch jacks to replace all previous RCA (phono) jacks, an enhanced power supply, and an optional meter bridge.

What we liked: Flip switch. Shelving and sweepable EQ are both splittable to monitor. EQ defeat. Excellent aux section with dedicated stereo cue sends for channel and monitor, plus four discrete effects sends. Monitor mute and overload LED. Comprehensive six stereo effects returns. Solo-In-Place. Two-track playback for two decks. Two sets of stereo outputs. External +4/-10 switches for tape in and group/direct outs. Group mutes. Optional meter bridge can be switched to

Pro Choice

Professionals around the world insist on Microtech Gefell's meticulously designed and crafted microphones. With a Gefell, you can match the right microphone to the demands of each application. From the critically acclaimed sound of the UMT 70 and the vacuum tube UM 92.1, both incorporating the legendary M7 capsule, to the unparalleled definition of the M294 with its unique nickel membrane, you get the results professionals expect. And above all, you get the music. So whether your next date is a symphony orchestra or a jazz ensemble, a rock band or a solo voice, you need a Gefell. Microtech Gefell covers the spectrum.

Microtech Gefell—the professional's choice.

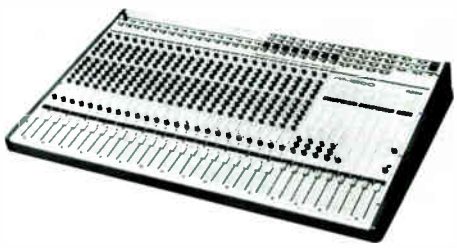
PRIME

TEL 212 765-3415 FAX 212 581-8938

USE READER SERVICE CARD FOR MORE INFO

monitor channels or tape returns and features 12-segment LEDs and overload indicators for the channels and two VU meters for the L/R mix.

What we didn't like: Phantom power is switchable in groups of eight. No monitor solo. No monitor master section. No VCA fader/mute automation.



YAMAHA RM800 SERIES

Available in 16- and 24-channel formats. 3-band channel EQ with EQ defeat. Four aux sends and four stereo effects returns. Internal power supply. Though somewhat limited in features, the aggressive pricing makes this mixer well worth considering.

What we liked: Separate Mic-Line/Tape switches for channel and monitor effectively function as flip switches. EQ defeat. Signal-present LED on channel. Alternate input source for monitor section. Monitor master section. Sub input to L/R mix. Eight tape inputs are externally switchable +4/-10. Separate L/R outputs at +4 and -10. Eight group outs at +4, eight group outs at -10, and eight combined group/direct outs at -10.

What we didn't like: No 32-channel model and not expandable. Global phantom power. Only 3-band channel EQ. No monitor EQ. No monitor solo or mute. No LEDs for mute and solo switches. No separate inputs for mic and line. Only eight XLR inputs. Only eight channel inserts and eight direct outs. Only has double busing on 24-channel model. Inserts on groups 7-8 only. No cue send for monitor. Limited mutes and solos in master section. No group assignments. No talkback section. No separate studio monitor section or studio outputs. No mono switch. No master solo level control. No Solo-In-Place. No external +4/-10 switches for more than eight tape inputs. No meter bridge or VCA fader/mute automation. ■

Dominick J. Fontana is an attorney in New York City. He moonlights as the owner/operator of "Studio di Fontana," a multitrack/MIDI recording studio. He is also a sysop in the CompuServe MIDI/Music Forum and related forums. His e-mail address is: 74766.2154@compuserve.com.

THE BIG SHIFT

When Personal Studios Go Public

Business planning is the foundation of any enterprise. But how do you plan the business evolution of personal recording studios? Personal recording environments (called "project studios" by most, though I feel their diversity and multiplicity have diminished that term's relevance) are developing beyond the original intentions of their founders. As the technology that supports them has become more capable, their owners have become caught up in the cycle of expansion and overhead costs. The cycle goes like this: You acquire a personal studio for your own use, and to support a move into one of several careers in audio—engineer, producer, musician, composer, arranger, etc. But you find that audio technology is as addictive as nicotine, and in short order, you take on leases and other overhead expanders and meet up with harsh financial realities; the most direct solution is to rent the studio out on a for-hire basis.

This path into the traditional for-hire studio business is an almost completely new paradigm. Facilities that were conceived as one thing and evolve into another have special requirements in terms of planning. Here are three case studies of personal studios that have crossed over, to one degree or another, to the commercial side of the fence.

JENNIFER RODDIE

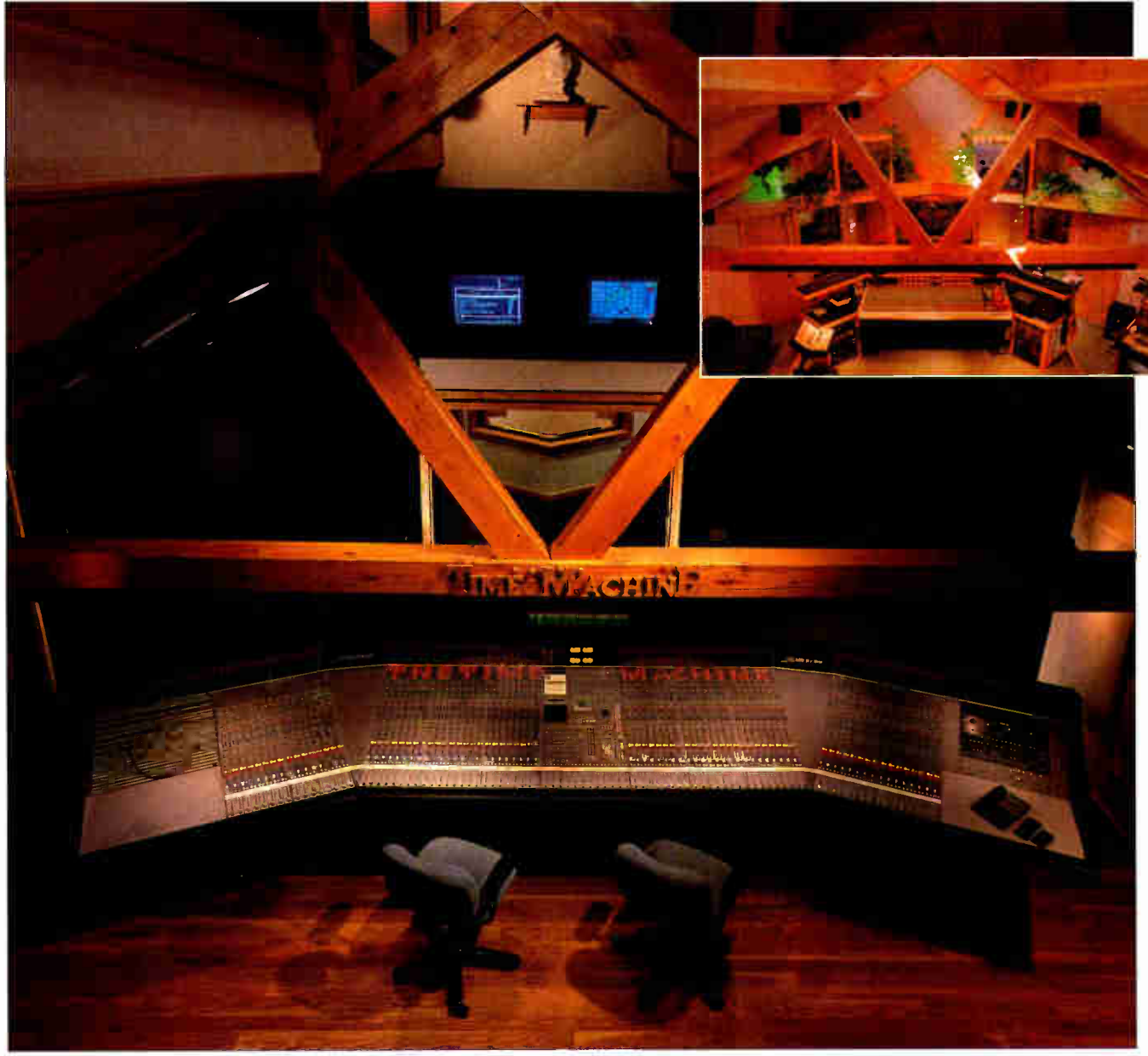
The Cutting Room production staff. Seated: Omar Brown (L), John Hopkins; standing, L-R: Kelly Blain, Mike Mangini, owner David Crafa and Malcolm Francis.

THE CUTTING ROOM

David Crafa got the recording bug while a student at Boston's Berklee College of Music, starting with a half-inch Tascam 16-track deck and a small Allen & Heath console in his dorm room. That setup went with him in 1989 when he transferred to New York University—"continuing the dorm tradition," as Crafa puts it. Somewhat more ambitious than most, Crafa started a record label, Zero G Records, and signed a pair of club DJs to do their own album using his gear. The success of that venture was limited, but Crafa was introduced to the demimonde of club music through his DJ/artists. As a writer and producer of dance tracks, his income, which ranged around $3,000 per month, grew. Crafa reinvested the money into more gear and, after graduating NYU in 1994, finally moved the studio from his dorm room to a residential/commercial loft space on East 25th Street in Manhattan, renaming it The Cutting Room. By then he was 24-track and had a larger A&H Sigma console.

At that point, Crafa began wondering where he fit into a market that was increasingly crowded and complex. "The idea of renting the studio out took shape over time," he says. "There was no formal business plan, but there was a lot of thinking about it." Crafa continued to collect more gear, but his purchases were being made from a new point of view—he was asking himself, "I know what I like, but what does everyone else like?" His first rental of the studio came in early 1995 and was engineered by one of a cadre of programmers he had trained as audio

BY DAN DALEY



The Time Machine before (above right) and after its 1992 upgrade

engineers. As Crafa found himself increasingly competing for time in his own studio, he created a separate, smaller Pro Tools-equipped personal studio in his bedroom.

Now Crafa is looking for a larger space in which to put the Soundcraft 3200 console he just bought from AudioTechniques. "This is a strange time in New York," he observes. "The market is changing. The volume of work tells me that the labels are signing millions of artists and giving them smaller demo budgets. They can't go to Quad or Hit Factory at that level of their careers. The smaller studio works for this market."

Crafa believes that he can successfully continue running a hybrid personal/commercial recording studio. The trade-offs are an implicit ceiling on rates (he charges around $60 per hour) and what will likely be an eternal balancing act between paying customers and his own productions. Crafa feels that the personal studio-turned-commercial suits New York's urban music scene, which seems to dominate the city's music-recording business and specializes in disposable artists, low-tech production values and fast turnaround. "The overhead of a larger studio is too expensive," he says. The benefit side is that, as Crafa continues to derive his core revenue from urban music, he can eschew things like a marbled lobby and quarter-million-dollar multitracks. "Clients love to see a room full of stuff, but they don't want to pay for it all," he says. "This level of technology is perfect for that. The razor's edge for me is to maintain the tradition of where I started, as a small studio, regardless of who's working in it. I don't need a receptionist."

TIME MACHINE GOES ALL THE WAY

This rural Vermont studio was started as the musical sandbox of artist/composer/producer Mike Cordell, with a DDA console, an Otari MTR-90 24-track deck and a lot of MIDI gear. In 1992, Cordell upgraded the studio to meet his own growing technology needs and decided to do so with studio rentals in mind. An acoustic and aesthetic redesign by Walters/Storyk Design resulted in a two-room complex with SSL and Euphonix consoles.

But entering the rental realm required more than just a studio redesign. Wheelchair ramps to bring the

structure into compliance with the Americans With Disabilities Act (ADA) added to the redesign cost, as did a loading dock for equipment. Offices had to be constructed for residential clients (the studio grounds already included a house). The phone system had to be upgraded so that both clients and owners could work simultaneously, and residential clients could be billed separately for their long-distance calls.

Robert Knox, hired during the transition as the technical supervisor for the installation of new equipment, stayed on. He is now studio manager of a complex that has made the transition fully to rentals in the wake of Mike Cordell's decision to move his personal studio to the Las Vegas area. "As the transition was going on, I chose gear that would have a wider appeal to a broader range of clients," says Knox. But the biggest job in the transition has been the refocusing of marketing for the studio. Knox found himself working the phone as much as a soldering iron as he contacted record labels and producers to make them aware of the studio's changing status.

A psychological element to this sort of transition makes itself apparent here. "This place was built as the artistic statement of one person," he says. "Now it's our statement to a technical world. We had to be prepared to accept rejection [of the studio itself], which is not something project studios usually worry about." And a more hard-headed language of business had to be implemented; a band may typically ask for extra DAT copies after a mix, but the record label may refuse to pay for a half-dozen extra DATs if they weren't on the original work order. Knox says that initial anxieties have been replaced by confidence as the studio's bookings increase and the staff becomes more comfortable interacting with clients. However, he stresses that personal studios in transition should be aware of the mental shifts necessary to remain objective at each step of change. "The transition was a learning process," he says. "I've been working in studios all my life, but taking a studio into the rental arena for the first time is a very different thing. The project studio origins don't hurt you; the trick is to overcome the perception that you were a private studio."

A SELECTIVE DARK HORSE

Nashville's Dark Horse Recording (actually in the suburb of Franklin) is an example of selective transition. Owner/avant-pop recording artist Robin Crow built the studio for his own productions in 1993, but by the summer of 1995 he had the place booked for six weeks by Neil Diamond, among other artists. His impetus to go rental was prompted by the classic cycle of equipment acquisition and expansion, reinvesting an average of $100,000 per year back into the studio, which in turn prompted him to add a second room. "What I wanted were [rental] clients that would park themselves there," he says. "I didn't want to become a traditional studio owner." Dark Horse has a Trident Series 80 console and an Otari MTR-90 multitrack.

By keeping the studio in his house and not advertising, Crow has been able to avoid any zoning issues. He uses the same personal secretary he's had for the last six years for client invoicing and other related tasks. "It's a mindset as much as anything else," he says. "I consider it a private studio that is let out now and then. Renting it out lets me reinvest in equipment. You just have to be aware of where the studio is at so it doesn't get away from you." ■

"The Clearest Path to Digital!"

AD-1000

Apogee's new ***AD-1000*** 20 Bit resolution Analog to Digital Conversion System is the combination of years of design expertise with the practical "real world" requirements of thousands of Apogee users. Descended from the industry standard AD-500E, the ***AD-1000*** adds 20 Bit resolution with selectable ***UV22™*** encoding, ADAT™ optical output, digital oscillator and transparent microphone preamps.

Portable 12 volt operation and dual stage, triple servo, direct coupled microphone preamps with phantom power, let you take reference standard conversion wherever you go. Effective input peak metering and "Over" indication ease the adjustment of separate mic gain and multi-turn CAL controls. Select the acclaimed ***SoftLimit™*** function to position your recordings above the competition.

A special version of Apogee's ***UV22*** process captures 20 Bit resolution and detail into 16 Bit formats such as CD, DAT and ADAT. ***UV22*** encoding is the overwhelming choice of mastering engineers world wide for condensing high resolution sources onto CD's.

Outputs can be ADAT optical or simultaneous AES and SPDIF to support multiple recorders. Optional outputs include SDIF, SDIF-II and TASCAM TDIF™. With the input selector set to DIGITAL, AES or SPDIF inputs are converted to all outputs. A built-in digital oscillator outputs all popular "0" reference levels fo precise headroom setting. Patented Apogee Lov Jitter Clock technology assures all digital outputs are free of the negative effects of clock jitter.

The ***AD-1000*** can operate as a Sync Master or loc to external AES, SPDIF or Word Clock. Film and Video are supported by NTSC color, monochrome and PA inputs. Transfer and repair work is further enhance with Apogee's "1.001" circuit, allowing pull-up an pull-down.

Don't settle for shortcuts to digital. Your project deserve the best. The clearest path from analog t digital is through Apogee's ***AD-1000***.

Digital audio unveiled

APOGEE ELECTRONICS CORPORATIO
3145 DONALD DOUGLAS LOOP SOUTH, SANTA MONIC
CA 90405. TEL: 310-915 1000/FAX: 310-391 626

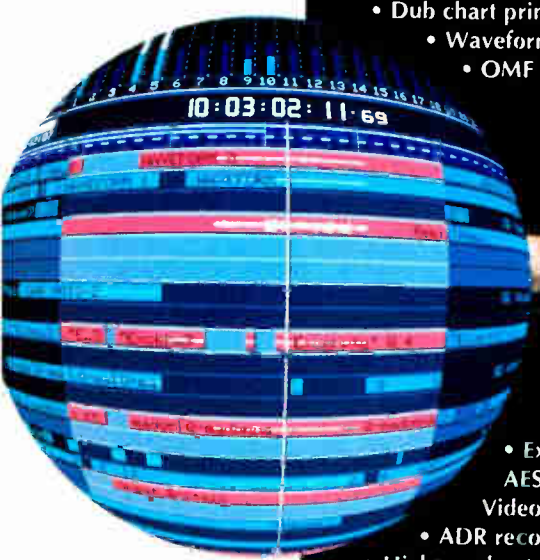
AD-500 Owners, contact Apogee for upgrade information.

Add more muscle

DIGITAL AUDIO 20 YEARS OF INNOVATION 1975-1995

with the power of the Mfx3 workstation
(the multi-track replacement)

- 24 Track I/O in Digital and Analog (AES EBU, SPDIF, Yamaha)
- 24 Tracks with realtime crossfades on every track from one HDD
- Integrated video and audio machine control
- Hard disk video option
- Instant zoom from 6 frames to 8 hours
- Scrolling waveforms on all tracks
- Dedicated controller
- Object oriented editing environment
- Overdub and takes management
- Comprehensive input routing
- Stereo mix output
- Record direct to MOD
- Edit 24 tracks from MOD
- EDL auto conform option
- Forward and reverse playback
- Four band parametric clip based EQ
- Timefx™ compression expansion, Varispeed, Varipitch software
- Powerful audio scrubbing - with *Audio Freeze Frame*
- Dub chart printing
- Waveform reverse
- OMF



- External sync to LTC, 9 Pin, AES/EBU, Word Clock, Video Black
- ADR recording software
- Highspeed networking option.

mfx3

USA Phone 1800-4-FAIRLIGHT, Los Angeles Phone 310-287 1400 Fax 310-287 0200
Europe - London Phone 0171-267 3323 Fax 0171-267 0919
Asia - Sydney Phone 02-9975 1230 Fax 02- 9975 1368
Tokyo Phone 3-5450 8531 Fax 3-5450 8530

fairlight™

THE BENCHMARK IN DIGITAL AUDIO

USE READER SERVICE CARD FOR MORE INFO

VIDEOHELPER IN NEW YORK CITY

"Alternative" is such a subjective label these days that when VideoHelper's Joseph Saba and Stewart Winter use it to describe their unusual but ready-for-prime-time production music, it's not exactly clear what they mean. That is, until you listen closely to the promotional music they create for ABC and Court TV shows, and you hear someone scream backward while the reverberation is being played forward, or a Phillips screwdriver being scraped across the strings of a severely distorted and EQ'd Stratocaster.

VideoHelper is part of a growing breed of New York personal-use studios. For Saba and Winter, producing projects in-house translates into more time for sculpting sounds and experimenting with unorthodox production techniques. "Essentially, we use sounds as instruments," Saba explains. "For example, we'll take a sound we've created like a big 'woomph' or a twisted vocal, and that becomes a compositional element rather than just a simple effect." Using a Kurzweil KS2000, E-mu ESI-32 samplers and a Mac IIci running Studio Vision Pro, Saba and Winter pitch-shift, transpose, time-compress and re-sample sounds they have collected. In addition, Winter often transposes vocal samples and turns them into vocal loops, while Saba has been known to dip into his exotic instrument collection and record a rubab, gushan, oud, Kuwaiti fiddle or Egyptian finger drums in unconventional ways.

When ABC News asked VideoHelper to create promo music that was "drug-like, but still had a beat that would propel it forward" for a War on Drugs special, Saba strummed and tapped his rubab (a 5-stringed, central Asian instrument that also has a percussion

PHOTO LENSA SMADA

Stewart Winter (L) and Joseph Saba

piece) through a flanger and compressor. "I had compressed the signal from the mic so hard that when I accidentally stepped on the mic stand, I got this great big boom at about 80 Hz," he says. "So I recorded the whole piece by alternately playing the percussion of the instrument, the strings, and stepping on the mic stand. I also mixed in a hip hop beat and heavily distorted guitar hits that faded in and out."

One of their favorite projects to date was creating the promo music for Diane Sawyer's interview with Michael Jackson and Lisa Marie last summer. "We had a lot of access to Michael Jackson's music," Winter recalls, "so we strung together songs as a montage. But we were careful not to make them that recognizable by normalizing tempos so that some songs were slowed down and some were sped up. We also layered hip hop beats on top of the original material so it sounded like something completely different. It was a way to do remixes without having the masters."

Saba and Winter founded VideoHelper more than a year ago after they saw a need for a new type of production music. Having worked in major TV network promotions for three years, Winter concluded that, after dealing with production libraries and producer requests for "something that sounds like Wagner, yet played by Def Leppard," it would be better to create the music instead. When he met Saba, who had been designing sound and composing for theater, as well as playing keyboards in NYC club bands and a major-label pop/rock band, they immediately clicked.

In addition to their samplers and Mac, Saba and Winter use a Mackie 32x8, a bank of MIDI gear, a modest mic collection, a Roland VG-8, an array of Lexicon and Ensoniq signal processors, and a Panasonic SV-4100 DAT machine to produce promo music for shows like *Prime Time Live*, *Turning Point* and Court TV's broadcasts of *The Nuremberg Trials*. By the time they open their new, two-room facility next month, they will also have a 12-channel Sonic Solutions system, as well as VideoHelper's commercially available CD production music libraries.

"Personal-use studios give you the freedom to create whatever you want whenever you want," Saba says, "without worrying, 'If I'm onto a new idea, but the room is booked in 45 minutes, will it be lost?'" Of course, owning your own studio has its associated costs. "We have to keep up with the latest gear to a certain extent, but as long as we're producing a sound that is unique, the personal-use studio offers us a greater opportunity to experiment." "It also gives us the opportunity to still work in our underwear," Winter adds, "which, as every musician knows, is incredibly liberating." ■

VideoHelper can be reached at videohlper@aol.com.

BY EVAN AMBINDER

MICHAEL CUSCUNA

A MOSAIC OF JAZZ MASTERS

Michael Cuscuna is like a kid in a candy store. A lifelong jazz aficionado, for the past 20 years Cuscuna has been mining the vaults of the great jazz label Blue Note, producing reissues that set a standard in the industry for audio quality and knowledgeable presentation. And on top of that, several times a year he gets to produce new recordings by the likes of McCoy Tyner and Don Pullen.

Cuscuna first came to prominence as a morning man on New York's WPLJ radio as the '60s turned to the '70s. He mixed jazz and rock in a memorable format that died when he left radio for good. A few years later, in 1972, he produced Bonnie Raitt's wonderful second album, *Give It Up*. Around this time Cuscuna was hired as a staff producer at Atlantic, where he also produced memorable records for pop artists Chris Smither and Garland Jeffreys, as well as jazzers Dave Brubeck and the Art Ensemble of Chicago.

Striking out on his own, he produced a series of critically acclaimed records for Dexter Gordon and Woody Shaw. However, a real watershed came in 1975 when Cuscuna was finally granted access to the vaults of the then-dormant Blue Note records, Alfred Lion's legendary jazz label. In six years he assembled and put out more than 100 albums of previously unreleased material.

Frustrated by not being able to produce serious jazz boxed sets from this and other vault material, Cuscuna and former Blue Note staffer Charlie Lourie decided to start Mosaic Records, a mail-order-only jazz label specializing in limited-edition boxed sets. Mosaic, a renewed commitment to a revitalized Blue Note label and various freelance projects have kept Cuscuna very busy lately. He is immersed in music he loves and is happy to see more activity in the jazz field than there has been for many years. He has ridden the rough-and-tumble seas of the recording industry and has emerged a winner.

What have you been up to lately?

I just did a new McCoy Tyner Trio record for the Impulse! label; it's the first new recording to re-launch Impulse!. It's a personal kick for me because I've known Michael Brecker for about 25 years, and he plays so wonderfully and he's never gotten to record in a relatively unstructured setting. I always wanted to capture him on tape in a much looser, open-ended format. Brecker and McCoy played Kimball's in the Bay Area in January, and they clicked and decided to make this record together.

What was really nice about this record was that the week prior to the sessions McCoy spent a week in Dakar [Senegal] and some of the outlying districts playing some jazz festivals, and there's obviously not a lot of night life there, and he had a lot of time to write. So we have some wonderful and varied McCoy Tyner compositions. It is the first McCoy Tyner album in a long time with a hefty chunk of new McCoy Tyner compositions.

BY ERIC RUDOLPH

Another recent project was a real recording challenge, a new record with Don Pullen and his African Brazilian connection band. Don's been going out to a reservation in Montana for about two years and working with the Indians, so we brought eight of the Chief Cliff singers from Montana to New York. They have a massive drum that everyone beats communally, and they sing with it. Don had developed some material with a couple of the singers that's really startling; it's very bizarre. It's an integration, and sometimes an alteration, of Native American music and what Pullen does with that.

Where did you record the Tyner record?

We did it at Rudy Van Gelder's studio in Engelwood Cliffs, New Jersey. Rudy started in Hackensack in the '50s when he converted his parents' living room to a part-time studio. He had a way of recording long before anyone else, where he really had a crispness to the drums and a depth

It May Come As A Shock To You...

But many manufacturers combine solid state circuits with tubes (known as hybrid circuitry). This may be less expensive, but certainly ***will*** ***not*** 'warm up' or 'fatten' your sound like an ALL-TUBE product. **Anthony DeMaria Labs** is the company that brings you the finest handbuilt, pure-tube equipment in the world. Of course, you don't have to take our word for it. Check out our client list and hear the difference!

Remember... It's not ADL unless it's ***ALL TUBE.***

"Top Dog In Audio"

Partial Client List:

The Rolling Stones • Flood (U2, Depeche Mode), London • Bob Clearmountain • Whitney Houston • Bon Jovi • Sony Music, NY • Butch Vig (Nirvana) • Bearsville Studios, NY Peter Moshay (Mariah Carey) • DJ Pooh (Ice Cube), L.A. • Chung King House of Metal, N.Y. • Isley Bros. • Heart • Hall & Oates • Foreigner • Masterdisk, N.Y. • The Cult Paul Northfield (Rush, Queensryche, Alice Cooper), Canada • EMI Studios, Australia • Sunset Sound Factory, L.A. • Neil Dorfman (Sting, Paul McCartney, Def Leppard) NY Platinum Studios, Thailand • Bad Animals Studio, Seattle • Margarita Mix, L.A. • Steve Barker (L.A. Philharmonic, jazz & blues festivals), L.A. • Sony Studios, Japan John Jennings (Mary Chapin Carpenter), Nashville • Glen Phimister (Olivia Newton John), Australia • Bernie Becker (Neil Diamond) • Jimmy Buffet • Shawn Colvin

Anthony DeMaria Labs

Sales: (818) 340-0228 • Fax: (818) 340-4331 • Service: (914) 256-0032

USE READER SERVICE CARD FOR MORE INFO

to the bass, and the horns sounded larger-than-life. He came closest to capturing what the horns sounded like if you're sitting at the front table.

Within a couple of years he was doing all Blue Note, Savoy and Prestige; this was in the mid-'50s, and he went straight on through until the late '60s when the jazz industry sort of crumbled. Through the '70s he did all the CTI records. For those of us between the ages of 40 and 60, Rudy really defined the way modern jazz was heard and recorded, and the way we expected to hear it, and he had a profound influence on a lot of engineers, musicians and producers. There's still people trying to figure out what he does, and he won't talk about it.

He was an early pioneer of close miking and putting the most signal possible on the tape. He took the signal level right up to the limit, without any distortion at all. You could play any of Rudy's Blue Note master tapes from 1958 and there's no tape hiss, not even on a ballad. Also, he never put a set of tones on his tapes; that's another aspect! In the old days you'd make the record and edit it, and next to his console was a lathe, and he'd master the record right there.

Is there anything unusual about his setup?

Because he is very private, the control room is set up so you are sitting six feet away from him with your own set of monitors, so you're never over his shoulder. He doesn't like people over his shoulder, and he doesn't like people knowing exactly what he's doing. Most engineers are private to an extent, but Rudy takes it to a higher level of secrecy.

The room was custom-designed by him, it's about 3½ stories high with a cathedral ceiling and heavy wooden beams. What he used to be able to get beautifully in Hackensack in his parents' living room in terms of echo he can now get from the natural room sound, which of course is something that's really sacred to a lot of us—most of the great rooms have been torn down, literally. His studio is only 15 minutes from the Upper West Side of Manhattan; you just go over the bridge and you're there, and you can go outside and look at some trees.

I use only CDs for playback, but I like to start with an analog source.

What other studios do you use besides Van Gelder's?

I like the Power Station. I like the staff, the maintenance, the room and the mic selection, but I wish they didn't charge rental on some of the rarer mics. To me the most important thing is the room and the engineer. You can now rent all but the rarest mics. The way a room is set up and the way it sounds live is very important to me, and that the engineer understands what you and the artist are looking for. Then you're pretty much home-free.

I like to record in Dolby SR. Rudy Van Gelder's is all digital; but for the most part I like to record multitrack SR and mix to reel-to-reel digital DASH if available; if not, then I'll mix to DAT. I don't mind mixing to DAT if they have a great A-to-D converter. I thought DATs were horrible when they first came out, but they have come a long way. But then, digital has come a long way, too. The first digital thing I ever

Two Studio Veterans Team Up.

Ed Cherney and the AT4033

Grammy-award winning recording engineer and producer Ed Cherney has worked with some of the most talented people in the business. Bonnie Raitt, Eric Clapton, Little Feat, Elton John, and The Rolling Stones just to name a few. So it was inevitable that he would eventually work with one of the finest microphones The AT4033.

Here's what Ed had to say about it:

"When I first used the 4033, I was working on a ballad with singer Jann Arden. But I'd always had trouble finding the right microphone to handle the level she sings at in choruses as opposed to lower volumes in the verses. *Until I tried the 4033.*"

"I just put it up with no compression, no EQ, and had her sing into it. And I mean, *it was right there.* The mic handled everything, stayed clear and open all the way through, and ended up sounding great."

For Ed and the AT4033, it sounds like the beginning of a long, successful partnership. But what about you? Just call, write, or fax for details on how you can team up with the AT4033

audio-technica.

Audio-Technica U.S., Inc.
1221 Commerce Drive, Stow, Ohio 44224
Tel: 216/686-2600 Fax: 216/686-0719
E-mail: pro@atus.com

Audio-Technica Limited
Old Lane, Leeds LS11 8AG England
Tel: 0113 277 1441 Fax: 0113 270 4836

did was this *One Night With Blue Note* concert, out of which came four albums. We were using a couple of Sony 1610s—this was before the 1630—and I find those records really upsetting to listen to, it's just so brittle and so one-dimensional. I find them painfully crystal-clear in the worst sense, lacking a lot of depth. I use only CDs for playback personally, but I do like to start with an analog source.

In terms of jazz, we're blessed with a lot of great engineers right now, and they all have leanings toward a different little segment of the music.

In terms of jazz, which is pretty much all I've been doing in the last ten years, we're blessed with a lot of great engineers right now, and they all have their own methods of working. As a jazz producer these days you don't have to worry about finding a good engineer. Now there are at least a half dozen great engineers who specialize in jazz, and they all have leanings toward a different little segment of the music, so it's great to be able to call on people for a project that A, they'll love, and B, you don't have to worry about. Some of the engineers I'm talking about are Jim Anderson, David Baker, Malcolm Addey, Mike McDonald, James Farber and Peter Darmi.

You talked about doing jazz for ten years. Any thoughts of getting back to pop?

I don't know. There's no one I'm dying to make a record with. What I used to love doing was singer-songwriter records, like Chris Smither, Bonnie Raitt, Garland Jeffreys. What I liked about it was that it was just a person and a guitar. And a person with a certain kind of vocal quality, who could write varied

RORKE DATA

V-MOD-100™

DIRECT TO DISK VIDEO

F.E.D.

Keep Your DAW Digital

Don't limit your digital audio workstation (DAW) with an analog VTR. The VMOD-100 completes your DAW by providing a random-access, timecode-synchronized digital video source. And what really makes the VMOD-100 unique is that no additional computers are needed!

All commands are accessible via the front panel or through slave/master configurations with your DAW. The VMOD-100 truly stands alone!

- Random Access Video Source
- S-VHS & Beta Quality Options
- LTC/VITC/BI-Phase Reader Options
- Sony P2 & RS422 Serial Control

VMOD-100 Rearview

The Backplane is Designed for Simple Plug 'N Play VTR Connectivity

Rorke Data, Inc.
For North and South American and Pacific Rim inquiries, call
[redacted]
612-829-0300
Fax 612-829-0988
9700 W. 76th St.
Eden Prairie, MN 55344
Visit our Website: http:/www.rorke.com

Ad Graphics Group Europe B.V.
For European inquiries, call
Tel. +31.5910-40900
Fax +31.5910-43883
Nautilusstraat 5a
7801 CE Emmen
The Netherlands

Euphonix family values

Digital - Automated Control
Sound Quality - Unsurpassed
Operating speed - Like Lightning
Business - Makes Money
Console - Euphonix CS2000

Break away from the old way of working and join the family of the present and the future. Euphonix is new technology, pure sound and application specific features in a package no other manufacturer can duplicate.

AT ANY PRICE!

Sarm
London
Mixed Seal's "Kiss from the Rose" from the Batman Forever" soundtrack on one of their CS2000M systems

Music

WFLD
Chicago
Broadcasting live Fox's Sunday NFL pregame show on the first CS2000B

Broadcast

Crawford
Atlanta
The first film system, a two operator CS2000F now being used to mix TV spots for The NBA on TNT

Post

Beachwood/ EDR
Cleveland
Mixed The concert for the Rock 'n' Roll Hall of Fame Grand Opening with their CS2000D

Post

Babyface
Los Angeles
Tracked and mixed the "Waiting to Exhale" motion picture score on his CS2000D

Artist Studio

Electronic Arts
Vancouver
Scores of all their interactive entertainment software on a CS2000D

Multimedia

Headquarters
220 Portage Avenue
Palo Alto
CA 94306
(415) 855 0400
Fax (415) 855 0410

LA (West US & Int'l)
11112 Ventura Blvd
Studio City
CA 91604
(818) 766 1666
Fax (818) 766 3401

New York (East US)
2 West 45th St
Suite 605
New York NY 10036
(212) 302 0696
Fax (212) 302 0797

Nashville (Central US)
1102 17th Ave
Suite 202
Nashville TN 37212
(615) 327 2933
Fax (615) 327 3306

London (Europe)
16 Berghem Mews
Blythe Rd.
London. W14 OHN
(171) 602 4575
Fax (171) 603 6775

Euphonix

http://www.euphonix.com

SEE READER SERVICE CARD FOR MORE INFO

and intelligent songs, and then we could take each song and build a setting for that song in terms of the approach and instrumentation, and how they play and who you hire, so every song on the record would be different. It was a lot of fun, and I loved the building process.

Sometimes it's the little overdub things that make a big difference. On this Bonnie Raitt record I produced [*Give It Up*], we did a Jackson Browne song called "Under the Falling Sky," and the late Wells Kelly, who was the drummer, said "Oh, man run it through again, give me a mic and let me just put a cow bell in." And he put a Rolling Stones-style cow bell in, and it changed everything. It's just a damned cow bell part, but it just lifted it up and made it something else.

What do you think made the difference for Bonnie Raitt, who was popular with a lot of people in the record business, but who had never sold a lot of records until the switch to Capitol? What went right?

A very simple thing happened. Bonnie went through a lot of personal changes and started to like herself, and once that happened everything that was pure and magnificent about her started to come to the surface. And that's why those last few records are stunning. And I think with [producer] Don Was she really found a compatible person. I think he's the most suitable person to encase her music in the ways we were talking about, building an arrangement and an attitude around each song.

Tell me about Mosaic, your mail-order jazz label.

Mosaic was started when Blue Note was dormant. Charlie Lourie used to work at Blue Note, and he got me into the Blue Note vaults, and I stayed working in those vaults off and on into the early '80s. By the early '80s Bonnie Raitt's career wasn't the only one that was in trouble—there were a lot of us in trouble. The record business wasn't in great shape, and everyone was playing it safe, and a lot of us didn't have much work at all. So I was staying in the Blue Note vaults just for the hell of it, researching and waiting for calls to do some work.

Charlie and I had originally gotten together in the '70s and talked to Capitol about starting Blue Note up again and they said, "Not now, maybe in a few years," so we came up with a plan to launch Mosaic as a boxed set label, limited edition and numbered, collectibles. We knew it would have to be mail order because a lot of retailers and distributors were going belly up, and a lot of labels were in trouble because of this. And we knew that the only way to make boxed sets the way we wanted to was to get full price for them, and the only way to do that was to sell them by mail. That also means you can control your inventory, and you don't have to send product out to get banged up and sent back to you.

We started Mosaic in 1983 with Blue Note and Pacific Jazz product, and then 2½ years later Bruce Lundvall got tapped to start a New York pop label for EMI, and part of the deal was that he could resurrect Blue Note. Bruce called me to do some reissues, and I never officially got hired to do anything at Blue Note. I just ended up doing everything. Of course now we have a staff at Blue Note, but I still don't have a title.

Is there any demand for LPs from Mosaic customers?

About 17 to 20 percent of Mosaic customers are analog. We use Music Technology in California to press our LPs; we also do Blue Note analog there. They were one of the first places to have the 180-gram presses; there is a world of difference. I'm not that technically minded, so my guess would be

the deeper groove gets to read more information, but all I know is that it is a much warmer, richer, fuller sound than the identical thing on a 120-gram pressing. When there was a little bit of vinyl ground swell I brought the 180-gram pressings into Blue Note, although I don't know financially how much longer we can do it, because you really have to sell 5,000 to make money; at 2,000 you're losing money.

Tell me about the Miles Davis **The Complete Plugged Nickel** ***boxed set.*** **[Ed. Note: These are legendary performances by Miles Davis' Quintet from 1965. The boxed set is eight CDs.]**

That's a preview to a series of boxed sets that will be very comprehensive on Miles Davis. There had been a lot of flack in the press about the way that Legacy [the reissue division of Columbia] had been treating Miles Davis' catalog. Legacy had really wanted to do Miles the Mosaic way, and so they said, "Let's gain control of the repertoire and do it the Mosaic way *by calling Mosaic*!" So we all got together and laid out a plan: We're going to do numbered boxes of definitive eras of Miles Davis in a complete form, so that no one can complain about something being left off or being put out accidentally in an edited form, or being sequenced in a bizarre, arbitrary way.

Plugged Nickel was a pile of tapes that had a rough existence. Nothing at all came out until the Japanese put out two albums in the mid-'70s. Then at the end of the vinyl era they came out as a double album here. Then when Legacy started they put out yet another album on CD and LP.

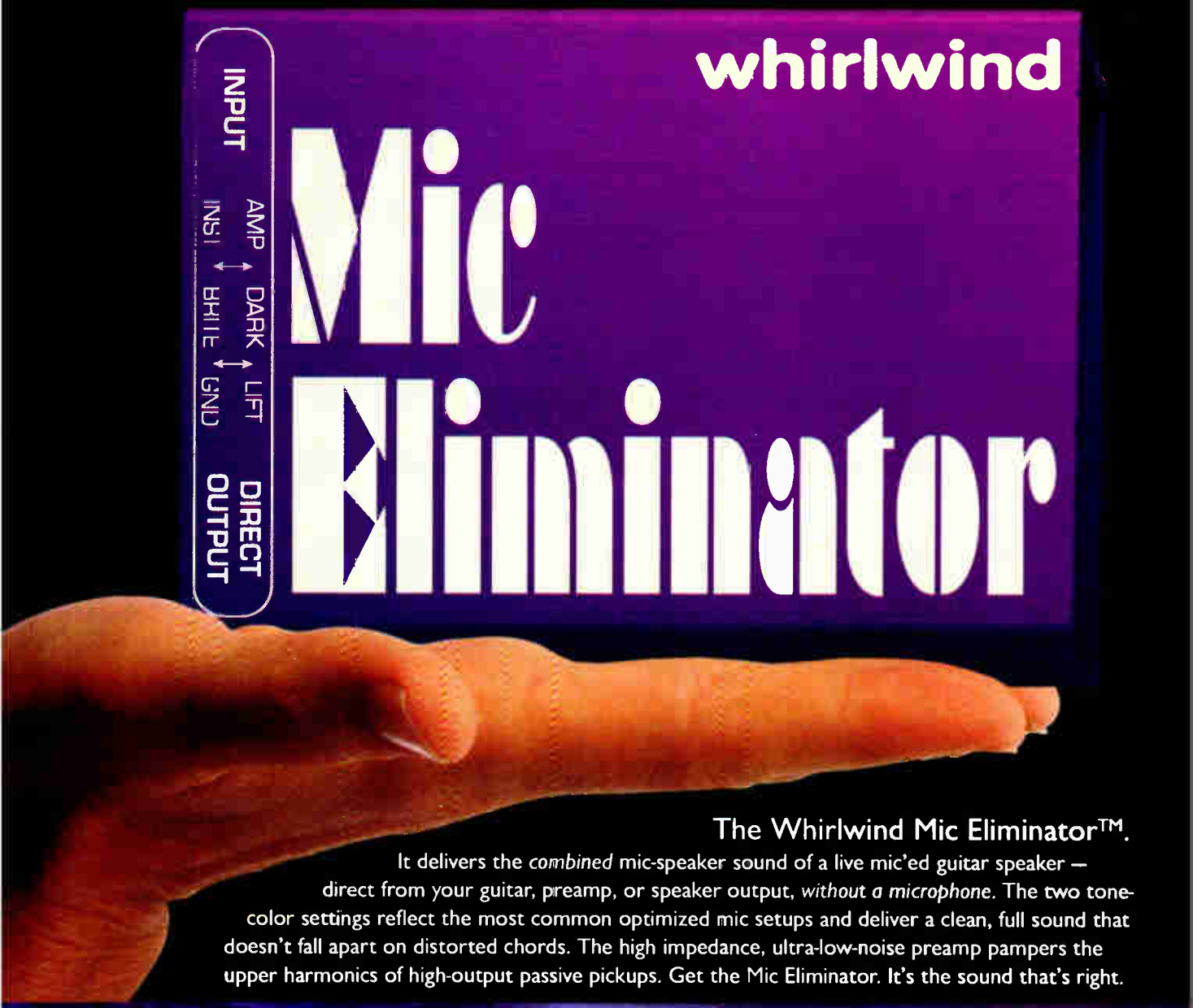
We started *The Complete Plugged Nickel* by using the same tapes the Japanese used. But then we couldn't find a really complete set of tapes, and we were looking for original 2-tracks because the tapes we had weren't originals; I could tell by the tape stock. Then Steve Berkowitz at Sony found a lot of the original 3-tracks.

The Japanese tapes had EQ and a little echo added to them, and there's nothing harder in the world to match than echo. So when I got the 3-tracks I tore my hair out for a few days trying to reproduce the degree of echo from Japanese tapes onto the 3-tracks; we tried it for a whole day and got nowhere, so I thought maybe we can only use the original 3-tracks, and the rest will be lost forever.

So we started working with the original 3-tracks, and got to a point where we liked it, and then for the hell of it we compared them to the Japanese tapes with the echo, and we had accidentally matched the echo, which we couldn't do when we were trying to do it! So a little EQ was added, and we were home. We were able to get complete performances, and because we were going from 3-tracks we weren't locked into the mastering EQ that was on the 2-track mix. It was a strangely miked set, but thanks to having the 3-tracks we got a little more out of it than we would have otherwise.

Plugged Nickel is the start of an ongoing series of Miles Davis boxed sets that will be absolutely definitive. They won't be full of endless boring alternate takes—boring because they're similar. I don't want historical drudgery; I want to make listenable packages, but we will be going through everything and remixing when multitracks are available. And we will un-edit stuff that was edited, where available, and try to do justice to Miles Davis' legacy. I've been dreaming for 20 years to get into the Miles Davis vaults at Columbia, because I knew there was so much more there than what was released. These seven Miles Davis boxes will take three years to do, and then we'll see who else we'll do in this way. ■

Classic Sound.



The Whirlwind Mic Eliminator™.

It delivers the *combined* mic-speaker sound of a live mic'ed guitar speaker — direct from your guitar, preamp, or speaker output, *without a microphone*. The two tone-color settings reflect the most common optimized mic setups and deliver a clean, full sound that doesn't fall apart on distorted chords. The high impedance, ultra-low-noise preamp pampers the upper harmonics of high-output passive pickups. Get the Mic Eliminator. It's the sound that's right.

whirlwind

99 LING RD · ROCHESTER · NY · 14612 · PHONE +1 716 663 8820 · FAX +1 716 865 8930

INSIDE THE PL4.0

The Best Sounding Amp Is Now The Most Powerful

PowerLight 4.0

PowerWave™ Switching Technology allows for the high-speed transformer to be small and dramatically light weight.

The charged capacitor bank distributes current as needed before the transformer—delivering continuous, stiff supply voltage.

A temperature-controlled, continuously variable speed fan blows heated air rear to front, keeping the amp and the rack cool.

An aluminum heat-sink tunnel designed with the maximum possible surface area transfers and dissipates heat.

The new PowerLight 4.0 introduces massive power to a series of amplifiers that have already become a benchmark for excellent audio performance and reliability. *PowerWave™ Switching Technology* (patent pending), at the heart of the PowerLights, is ***the power supply technology for the future***. *The 4.0 clearly demonstrates why...*

SUPERIOR AUDIO

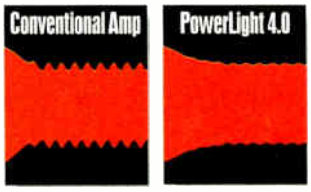
The 4.0 achieves remarkable audio quality because ***voltage supply to the output section is powerful and stiff***. There are virtually no sags following transients or long peak power demands. You won't hear typical modulation from AC ripple or garbling during clipping. The bass is ultra-clean and fat. Highs are pure and unstressed.

MAXIMUM EFFICIENCY

A PowerWave transformer "flies" at 115 kHz (2000 times the frequency of a conventional transformer). Waste heat from resistance is almost nil. The supply is 90% efficient! And the 4.0 features ***the latest three-step Class H linear output circuitry*** for maximum audio quality and efficiency.

"NO-FAIL" PERFORMANCE

QSC's renowned protection circuitry is enhanced by the PL 4.0's "smart" supply which matches power delivery to changing musical demand. The 4.0's thermal management keeps the amp cool under extreme conditions (even 2 ohm loads). And with the 4.0, ***EMI and RFI are absent***, making the amp safe for wireless mics.



Less power sag, less clipping intermodulation, more bass impact, cleaner transients...PowerLight.

INCOMPARABLE AMP

You won't see or hear another amp with the power and performance of the PowerLight 4.0. ***Call your QSC Dealer or QSC direct at 714-754-6175*** for complete details.

4 PowerLight Models

Output Power in Watts per Channel			
MODEL	8Ω *	4Ω *	2Ω **
PowerLight 1.0	200 Watts	325 Watts	500 Watts
PowerLight 1.4	300 Watts	500 Watts	700 Watts
PowerLight 1.8	400 Watts	650 Watts	900 Watts
PowerLight 4.0	900 Watts	1400 Watts	2000 Watts

**20 Hz-20 kHz, 0.1% THD, ** 1 kHz, 1% THD*

PowerLight 4.0 Key Features

- PowerWave™ Switching Technology
- Advanced Thermal Management System
- DC Sub Audio and Thermal Overload Protect
- Data Port for Use With QSC MultiSignal Pro
- Neutrik Combo and Tool less Binding Post
- Extreme Light Weight 30 lbs*
- 6 Year Warranty Available

Three-step, Class H linear output circuitry insures less waste heat, less current demand and excellent signal-to-noise ratio.

QSC™ AUDIO

HEAR THE POWER OF TECHNOLOGY™

The front panel of the PL 4.0 features comprehensive LED status arrays, detented gain controls with soft touch knobs and 2 dB steps for easy resetting.

Made in USA.

QSC Audio Products, Inc. 1675 MacArthur Blvd, Costa Mesa, CA 92626-1468 **Ph** (714)754-6175 **Fax** (714)754-6174 **E-mail:** tiffany_walker@qscaudio.com **QSC OnLine BBS:** (800) 856-6003 or (714) 668-7567
(In Canada) **S.F. Marketing** 6161, Cypihot St. Laurent, Quebec, Canada H4S 1R3 **Ph** (514) 856-1919 **Fax** (514) 856-1920

PAUL FOX

THE BAND'S THE THING

If you run into Paul Fox at a party, you might not realize he's one of the busiest producers around, and one of the most critically acclaimed. Low-key and unassuming, he won't be the one to tell you that the *L.A. Times* gave a rare four-star review to his recent production of Victoria Williams' 1995 CD *Loose*. From projects with Boy George to XTC, The Sugarcubes, 10,000 Maniacs and Phish, you'll find that no two Fox-produced records have the same sound. Instead of putting his signature on a record, he seems to search for the essence of a band and to reflect that essence in the sounds.

He started as a keyboard player and synthesist, becoming an in-demand session player, with his riffs heard on hits like the Pointer Sisters' "Neutron Dance" and Michael Sembello's "Maniac" (featured in the movie *Flashdance*). But his heart was always in music made by live bands, and today he finds himself in demand with groups who hang their instruments on the creative edge.

PHOTO: MAUREEN DRONEY

There are all kinds of producers; some are engineers, some write songs, some just create a vibe so that they achieve a great performance. What kind of producer are you?

I'm a little bit of all of those. While I have a little bit of engineer in me, my background is more from the music. But as a producer, you have so many different bags that you have to dip into, aside from whatever first brought you into the business. I came from being a musician—a keyboard player—but as a producer, I think it's important to make people feel good in the studio and to push people to perform—to create an ambience so that people feel comfortable and to develop a sound for each record. You have to be somebody who is aware of all the different levels that go into being an artist. There's a little bit of being a psychologist, a teacher, the musician and arranger. Then there's being the engineer and the sound sculptor. The artist, if they are burdened with having to do all those things themselves, can sometimes get lost in a fog. I'm the guy who flies the helicopter above the trees to look down and get the

BY MAUREEN DRONEY

overview.

Your records all sound very different.

I like things that are sonically interesting, aggressive, and that jump out of the speaker so that people are compelled to listen. But I'm not the kind of producer that puts my stamp on every artist. Instead, I try to be the conduit through which their vision can travel down and come out. And at the end of the day, hopefully, they turn around and say, "*This* is what I've been trying to do." So I'm a translator of sorts, or a facilitator. Maybe I'm like the George Martin-type—I kind of become the extra member of the band. But I definitely have strong opinions about how I think things should sound, what kind of performances I'm looking for and what the arrangement should sound like. I usually have a vision of what each record should sound like when I go in.

One thing your records do seem to have in common is a rhythmic tightness.

That's probably from my R&B background. Sly & the Family Stone was a big influence on me, and I love the simplicity and the solidity of R&B records. There's always a groove. Like in Motown records, the groove is in the memorable bass line and the solid drum part. You can take everything away but the bass, drums and vocals, and you've still got the record. I rely on having that foundation. Making a record is like building a house: If you don't have that strong foundation, it's going to be harder to put walls up. If you have that strong foundation, you can leave it very simple, or you can decorate it any way you want, but at least you have the house.

Is it hard for you to produce keyboard players rather than to play the parts yourself?

No, actually it's more fun! Some records I play on if I feel that I'm the right person for the part, but usually I'd rather stay in the control room and listen.

You work a lot with engineer Ed Thacker.

We've been working together for about ten years, and sometimes we don't even have to talk to communicate. I can be out in the studio, getting the sound out at the amps, choosing the drum mics etc., while Ed is getting levels, EQ'ing and setting compressors. We're big believers in getting a good sound at the source, as opposed to manipulating it afterward. Then we can always experiment later or decide to just let it be. Sometimes that source may be very natural, at other times very processed.

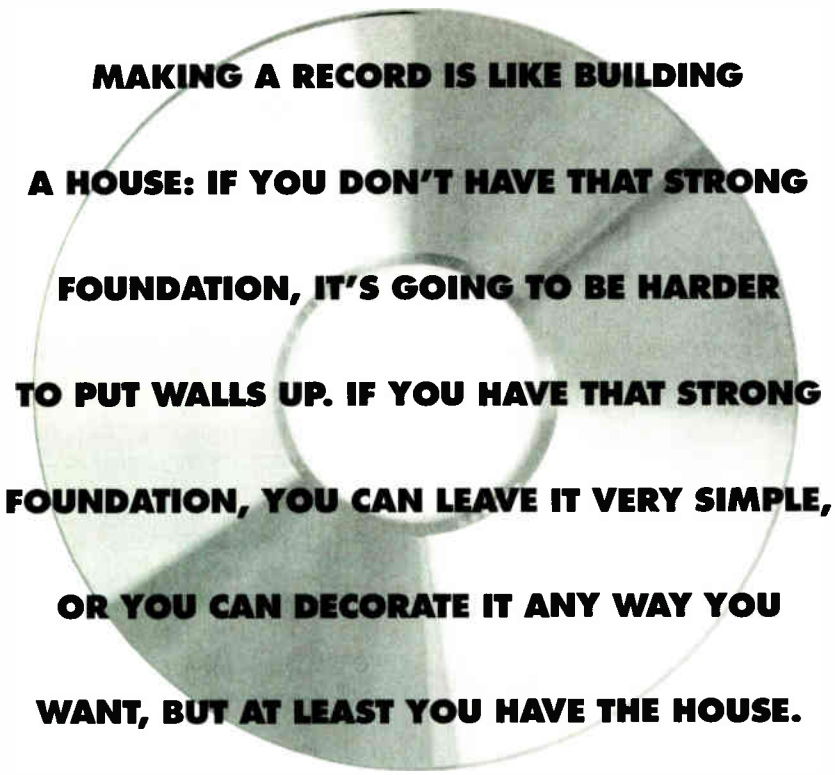
How did you get your first production job?

Virgin Records had moved to Los Angeles, and they were looking for new producers in the pool of younger studio musicians, arrangers and songwriters, and I kind of fell into all three categories. There was a record by an artist named Scarlett & Black that had been done in England, and they wanted someone to remix and reproduce it, thinking they had a single. So they called me up and offered me the tiniest budget I'd ever heard of, and I raised my hand and said, "Exploit me, I'll do it!" I went in the studio and worked on this record, and it turned into a Top 20 single. So they were pretty happy and decided to give this artist a shot. It was duo actually, a guy and a girl. They gave us an album to do, and during the course of that, they wanted a remix/reproduce on another single, which was Boy George's "Live My Life" from his first solo venture, and we had a Top 40 single with that. So, they literally sat down with me one day, showed me the Virgin roster and said, "Is there anybody you're really interested in working with?" and we went down the list to X, and I said, "What about XTC?"—and the next thing I knew, I was in England having lunch with them. I was a big fan of theirs. And that was a big thing about producing for me, the chance to get back in touch with the music that I really loved myself. As a session player, you're a player for hire.

My tastes were always more rooted in bands, and during that period in the '80s, there weren't that many bands that I was a fan of. It was the time of band-in-a-box, plug it in and here it is. I grew up listening to the bands of the '60s. It's ironic: I regretted at a certain time that I wasn't of an age to work with a lot of the people that I grew up listening to. I thought that music was just going to go off in this other direction and that '60s and early '70s music was a bygone era. And I feel really fortunate now that it's come full circle.

Your reputation as a producer has really been built on working with live bands.

Yeah, it's kind of against what everyone who knew me at the time thought about me! I was this synthesist involved with the cutting edge of technology. As a matter of fact, *Flashdance* came about because Phil Ramone and Michael Sembello needed someone to be able to sync up an Emulator with this track that they had cut with a Linn Drum. This is pre-MIDI, you understand! And I happened to be home when they called. I went over to Michael's house, and we worked on various things for a couple of days there and in another studio be-



cause I knew how to do the synching. So people kind of discovered my musicality through the technology. I got in the door to the studios through my knowledge of the equipment, but I'd always make sure to noodle around on the keyboard so that people would know that I could play.

What's important to you in a studio setting?

Well, given that I do work with a lot of bands, that mysterious thing called "vibe" is pretty important to me. I like the bands to feel comfortable, so I tend to work in studios that are a little funkier rather than slick. With younger bands, I feel that they can be a little intimidated, especially if they come to

Los Angeles to a studio where there are big-name artists in the other rooms. Or they feel like they can't sit on the couch 'cause it's so new. If people feel intimidated, they close down creatively. So I prefer a one-room facility or a facility where once you're behind the door of the studio, you feel in your own space that you control. For tracking and overdubs, I like vintage consoles. Neve 80 Series, Trident A-Range or API. And I like studios with a good mic selection, which usually takes me to older studios who have had the time to accumulate mics. For mixing, SSL is my usual choice, E Series with the G computer. Lately, we've also been using a Neve retrofitted with GML flying faders.

How do you get your vocals to pop out of the speakers?

Doing things like cranking the gain on the mic preamps very hot for songs that are going to have really soft approaches so that someone can get right up on it. A lot of singers love to be able to hear all that tongue and throat noise, every little nuance. And if you crank somebody up on the preamp, it's like somebody singing right into your ear. Choosing the right mic helps. Sometimes I'll try a few to see which one

sounds best overall. Sometimes the song dictates a specific mic.

They Might Be Giants'* John Henry *CD sounds great.

Yeah, that's one of the great unsung records. It was the first time they had worked with a band! They started off as two guys who played accordion and guitar, and everything else was done

with machines and tapes. They went out and performed like that most of the time. And since they had never worked with a band before, they took the core band out on the road with them for almost a year before we made the record. I really like it when bands play the new songs before going in the studio. So you don't have the classic situation that you get when the songs are brand new in the studio, and then they go out and tour and come back and tell you, " Boy, I sure wish we could record the record now that we really know how these songs go!" The Maniacs went out and played ten or 12 gigs in between preproduction and recording, and the difference was really noticeable in the rhythm section—they were settled in, and they weren't thinking about it. You're trying to get performers to that place where it's a pure performance and you're really just playing from your heart—you already know where all the notes are. If you can achieve that, you get that extra 10 percent of emotional contact with the material that people can grab onto when they hear it coming down the other end.

What was it like working in Jamaica with Ziggy Marley?

We had a great time. It was an experience I was looking forward to having that actually came true exactly as I had imagined it. To work with someone from the Marley family in Jamaica, and know that what we were doing was working. The musicians and the friends and the people who have grown up with this music were reacting to it and liking it. Instead of doing it in the States and just imagining it was going to work. After we did our first mix, Ziggy took the cassette out to a truck in the studio parking lot where his friends were hanging around and they listened to it. He came back in, and I said, "So how's everybody like the mix?" and he just looked at me and grinned and went, "Yah mon!" So that was the license to continue. The only drawback was lack of outboard—Design FX arranged to ship us a rack of the outboard we needed, along with spares. And there are a lot of power outages in Jamaica because they are revamping the electricity—so we'd sit there for a couple of hours in the dark a lot. But we got to make that record with the same everyday problems and events that exist in Jamaica.

Also, everyone there was interested in seeing the equipment we brought down, and I'm sure some new and "old" pieces will be finding their way down to Kingston over time. They overcome their gear limitations with their musicality and spirit, and the lack of technology has helped to create the Jamaican sound, as they use what they have. I should add that Errol Brown, Ziggy's engineer, did a great job.

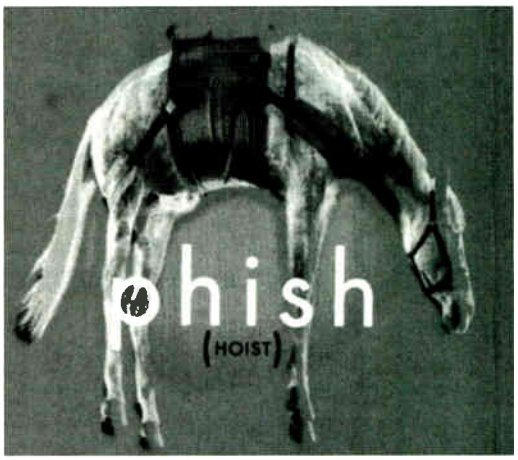
I've been fortunate. Some people say join the army and see the world—well, I say be a producer! I've gotten to go to Iceland, New Zealand, Australia. Early on, when a band was wondering if I was the right person to work with, I'd go to where they were and just work on material with them—go in the studio and cut the demos and show them what I could do to help them.

Your wife [hit songwriter Franne Golde, composer of, among other songs, the Commodores "Night Shift" and Selena's "Dreaming of You"] writes very different kinds of music than you work on. How do you influence each other?

We both really love good songs. We are also pretty honest with each other's music. And I've exposed her to some things she wouldn't have heard, with the more alternative bands, and in a lot of ways she's exposed me to the craft of writing a great song.

As a producer, I started off working with bands that were pretty left of where center was at the time, although I had a strong belief that the type of music I was working with was going to attract a larger audience as time went by. Most of the stuff we were doing back in the mid-'80s was called college rock, there were no AAA stations. It was just about young bands who had rejected corporate rock. They were of the generation that was old enough to be writing songs of their own, but young enough to have missed Dylan, The Beatles and Cream when they happened. And I grew up listening to those bands, so I have a great camaraderie with lot of younger musicians who listen to those bands with as much or more reverence than I did. I just listened to them because they were the next band that came out!

And the songs are the vehicle for it all. Back in the '60s, the songs were connected with the social movement, and they had something to tie into. Now, the songs aren't as connected with the society in a political way, but I think in a lot of ways, new songwriters are able to express personal feelings relating to how they fit, or more aptly, how they don't fit, into society. And that's what rock 'n' roll has always been about. The music for the people who didn't fit into what everybody else expected. I think that will always be there. I'm just glad right now that people are trying hard to write good songs, because that's the backbone of longevity. ■



Maureen Droney is Mix*'s L.A. editor.*

Solid State Logic

IN CONJUNCTION WITH

MIX

PRESENTS

Prestige

STUDIOS OF THE WORLD™

A UNIQUE VIRTUAL TOUR OF TEN OF THE WORLD'S FINEST RECORDING STUDIOS, ON CD AND THE INTERNET

RECORD PLANT, LARABEE, OCEAN WAY, THE HIT FACTORY, RIGHT TRACK
MASTERFONICS, TOWNHOUSE, THE CHURCH, WISSELOORD, GUILLAUME TELL

- Explore the studios using a QuickTime VR virtual reality tour
- Meet leading artists, producers and engineers including Bob Clearmountain, Dave Stewart, Bruce Swedien, Frank Filipetti, John Gas, and Rudolph Schenker
- Visit George Lucas's remarkable Skywalker Sound facility
- Audition audio tracks recorded at selected studios
- See how the CD was made, using the latest multimedia tools at 21st Century Media's multimedia production studio
- Connect directly to the Prestige Studios Web site using CompuServe Connect software, supplied on the CD
- Play the integrated CD & Web game and have a chance to win a day in one of the featured studios

A SHOWROM℠ INTERACTIVE AUDIO CD WITH INTEGRATED INTERNET
FOR AUDIO CD PLAYERS, AND MACINTOSH AND WINDOWS COMPUTERS

COMING THIS SPRING FROM MIX MAGAZINE - CALL 415.453.9407 FOR MORE INFORMATION

DEVELOPED & PRODUCED BY

21ST CENTURY MEDIA®

883 FOURTH STREET SAN RAFAEL CALIFORNIA 94901 415.453.9407 WWW.C21MEDIA.COM

CO-SPONSORED BY

FWB incorporated · CompuServe · MEDIA 100 · Disc Manufacturing, Inc. · Adobe · MACROMEDIA · KABA GROUP · SOUND IDEAS

USE READER SERVICE CARD FOR MORE INFO

SOUNDFIELD STUDIOS

LOCATION RECORDING FOR TUBE HEADS

Setting up studios in exotic locations—such as French chateaux, Italian villas and English manor houses—is the latest craze in location recording. Joining the ranks of other European companies that perform this service, such as Ireland's Audio Engineering (Feb. '94 *Mix*) and England's Hilton Sound (Dec. '94 *Mix*), is Soundfield Studios. This company has been up and running for only a couple of years but has already participated in some very impressive projects.

The company is owned and run by engineer Jonathon Miles, who began his career in the early '80s working as a second in The Eurythmics' studio, The Church, in North London, while he completed his coursework in acoustics and sound engineering at North London University. His early experience also includes two years assisting at Falconer Studios (London), and engineering work with producers Jef Eyrich and Robert Kraft (now a VP at 20th Century Fox Music). Later, Miles worked as an A&R rep for French label Musidisc, where he kept his hand in technically by helping mix The Levellers' first album, while cementing licensing deals with international labels such as Rykodisc, Intercord and Castle Communications. In 1990, Miles left Musidisc but remained in Paris as a freelance engineer and producer. He returned to the UK in '92 and started his own dance label, Boom Records, which he says broke even, but his waning interest in the dance trend and the moderate financial performance convinced him to abandon the project.

Soundfield Studios offers recording locations throughout Europe and the Caribbean, like this manor house near London.

Soundfield director Jonathon Miles with his flight-case studio

"So in the beginning of '94, I decided to start Soundfield Studios," Miles explains, "because I needed something to hook myself into that would allow me to continue my interest in recording and perform a service, because I found that in all my previous work I was always a good organizer—somebody who can catch the spirit of what people want to do and make it happen."

The company offers two ways to set up a studio on location. One is the mobile truck Miles dubbed The Valvemobile. "It is equipped entirely with restored vintage tube and discrete analog equipment, most of which is over 25 years old," Miles says. "The truck is really in

—CONTINUED ON PAGE 123

BY BARBARA SCHULTZ

MG SOUND, VIENNA

When Vienna's MG Sound opened in 1989, it was underground—it was one room in a cellar and mainly did commercial work for Austria's state-owned radio station and television channel. Today, MG is in an Andy Munro-designed three-room facility in Vienna's First District (which means it's situated close to the city's main musical attractions: opera house, symphony hall and theaters) and has just upgraded its Studio A with an SSL 4064 G Plus console with Total Recall and Ultimation, and a new Studer D827 48-track recorder. But the staff of MG remains much the same as when the facility opened.

(L to R) Stevie Coss, Eva Maurer and Martin Bohm

MG Sound is owned by engineer/producer Martin Bohm and producer/composer Stevie Coss, who, together, founded the studio as an offshoot of their own musical pursuits. It is managed by Eva Maurer, who was a DJ for Austrian Radio when she became acquainted with the partners and, consequently, brought with her many contacts in the local radio and record industry. She helped work out the studio's move to the First District four years ago. "At the time, we said, okay, there's a possibility to have a slightly better studio, or we can make a *really good* studio and try to bring it up to an international standard," Maurer says. "When we started, there was 90 percent jingle and commercial work and ten percent other stuff. Now we do 70 percent production of jingles and commercials, and 30 percent is rental work and music-recording for TV series, albums and movies."

MG's greatest asset is clearly its staff. Bohm and Coss are partners in all of the production they do, which means they compose, record and produce music for all the material Maurer mentions. All three of the facility's control rooms are networked to all three recording rooms, to allow for interaction and smooth transitions between the three spaces and their respective functions: Studio A is the main recording room; B is a pre-production studio, and C is for post-production/audio-for-video work. "In Austria, the market is really small, so once you have a studio of these dimensions, you have to do everything. We try to be really flexible, to offer clients all possibilities, but we still work as a small team, because one of the selling points of our studio is that people like to work with us personally."

The partners selected their new console not only because Bohm enjoys working on it, but also in an effort to give the facility what Maurer calls an "international standard." This way, she says, "We don't have a problem with international engineers who might not know the console, so this could get more international clients into Vienna."

In addition to the new console and tape machine, MG's Studio A features Genelec 1034A and Dynaudio PPM1 monitoring and a computer running 16 tracks of Digidesign's Pro Tools III. Studio B is equipped with a 56-channel DDA DCM 232 console with an Uptown Motorfader and Switchautomation. Monitors in Studio B are Genelec S30 and Yamaha NS-10s. This room also offers four tracks of Pro Tools, Opcode Studio Vision, Steinberg CuBase Audio, and keyboards from E-mu, Ensonic, Oberheim, Roland, Korg and Yamaha. Control Room C has two Yamaha ProMix 01 consoles, KEF Reference and Dynaudio PPM1 monitors, Pro Tools and PostView. In addition to the new Studer D827 multitrack, the facility has a Sony PCM 3324A and a Studer A827 analog machine, ADAT with BRC and a wide range of outboard gear and mics. It's a gear list that reflects the versatility of the "small team" and the wide-ranging material they encounter.

MG Sound's projects have included recording Jose Carreras and Placido Domingo singing the assignation for the Olympic games in Barcelona; mixing and post-production for presentation of *The Queen Story* on CD-ROM, video and television; a double CD Christmas album that features musicians and solo vocalists from many of Vienna's musical theaters; and the soundtrack for a Bank of Austria industrial. ■

BY BARBARA SCHULTZ

WE'VE CAPTURED EVERYTHING FROM CRASH CYMBALS TO SEX SYMBOLS.

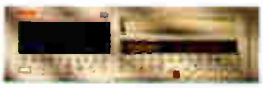
In this business timing is everything. Which explains some of the success behind our industry-leading lineup of SMPTE timecode DAT machines. Of course, mass appeal doesn't hurt either. So if you're looking for outstanding value, you'll find it in our D-10, the most affordable timecode DAT recorder on the market. If you need a full-function chase/lock machine, you'll appreciate our D-25 with RAM scrubbing and Sony® P2 protocol for serial editing control. Our D-30 represents the pinnacle of DAT technology, with it's remarkably user friendly nature and renowned intuitive display screen. If multitrack is the issue, our RD-8 is the machine of choice. And when it comes to portable recording, nothing keeps up with our second generation PD-4's unparalleled ease of operation and 3-channel mixer. Want to know more? Simply call Rick Cannata at 800-9-FOSTEX. You'll see why—from music tracks to soundtracks—we've developed a following that stretches from Nashville to Hollywood.

FOSTEX

D-10 Production TC DAT Recorder

D-25 Studio TC DAT Recorder

D-30 Master TC DAT Recorder



RD-8 Digital TC Multitrack Recorder

PD-4 Portable TC DAT Recorder

Fostex Corporation of America 15431 Blackburn Avenue, Norwalk, California 90650, U.S.A. Telephone: (310) 921-1112 Fax: (310) 802-1964

USE READER SERVICE CARD FOR MORE INFO

—FROM PAGE 120, SOUNDFIELD STUDIOS

demand with bands who want to sound different. In fact, the Valvemobile has just finished recording a new album by Link Wray, using 1950s mic techniques in an old ballroom near London. Wray also recorded some tracks in a 600-year-old barn—the owner told him it was haunted. Link loves all that 'ancient legend' stuff.

"But if you prefer a more physical link between the live area and the control room, we will install a complete control room inside your choice of location," Miles continues. "We offer a choice of three different consoles centered around a good patchbay and fully connectorized racks, which can be loaded with the client's choice of mic-amps, equalizers, compressors, effects, etc. The whole system can be put together in a few hours with the use of Mogami multicore and Elco connectors, which were custom-wired by Jim Lassen of Professional Connections."

Miles works closely with an audio hire company, FX Rentals, which supplements Soundfield's stock with a wide range of equipment. "London's finest and friendliest rental company," Miles says. "We collaborate on most projects." Miles says he gets frequent requests for older equipment, such as analog 24-track machines and vintage outboard gear: "Neve modules, Pultec EQs...all the stuff you feel excited about when you find it in a studio and feel disappointed if it isn't there." The equipment Soundfield can supply is too extensive to list here, but highlights include a 24-channel Helios console, a 56-input Mackie board with custom patchbay, an SSL 4068E console, and analog recorders from Studer, MCI, Otari, 3M, and Dolby types A and SR. Digital recorders include a Sony 3348, Mitsubishi X880, Tascam DA-88, ADAT with BRC and AI-1 digital interface, and an impressive selection of tube and solid-state outboard gear, mics and monitors.

One of the first projects Soundfield undertook was a Les Negresses Vertes album, produced by Rupert Hine and recorded in an old hotel casino in the south of France. This project employed the Mackie console, four Alesis ADATs, and Neve and Focusrite preamps. On a larger scale, Miles recently coordinated the recording of several tracks on Lenny Kravitz's *Circus* album. "Lenny and his engineer [Henry Hirsch] were very specific about wanting a big room," Miles recalls. "They were trying to re-create the kind of space that existed at Olympic Studios in London when the Stones, Hendrix and Zeppelin were recording there. It was a huge, gymnasium-sized room with very unorthodox surface treatment, which, by today's design criteria, would be unthinkable, but for some reason, it worked. You can really hear the amazing acoustic of that room on the old recordings.

John Cale (front), Moe Tucker and producer Martin Brass

"We ended up concentrating our search around the Paris area," he continues, "and I came up with a stunning 17th-century chateau about an hour from Paris. It has been completely restored by the owner, who is an architect and a bit of a 'bon viveur' with a passion for music and art. When I proposed the idea to do this recording there, he was a bit concerned that it would be sex, drugs and rock 'n' roll, but after meeting Lenny, he was reassured, and once recording was under way, he used to pop into the session with a bottle of champagne from time to time. The chateau has 14 bedrooms and two huge banqueting halls, which are 80 feet long, 40 feet wide and about 30 feet high." The Kravitz recording employed the Helios console, a 3M analog 16-track recorder and a variety of vintage tube mics, preamps and backline, much of which was shipped from Hirsch's studio in the U.S.

The Dave Soldier String Quartet and singer Jimmy Justice

Soundfield's most recent location-recording project took place at a festival of American arts in Lille, France. The festival included a showing of two silent Andy Warhol films—*Kiss* and *Eat*—with new soundtracks performed live by John Cale and Moe Tucker of the Velvet Underground, with the Dave Soldier String Quartet, B.J. Cole on pedal steel, and background vocalists Tiye Giraud and Jimmy Justice. Each film runs for about 50 minutes and was shot in 16mm black and white. "*Eat* shows a guy chewing and eating," laughs Miles. "And *Kiss* is, yes you guessed it, many different couples kissing in close-up. It's an enjoyable, semi-orgasmic film. I observed the audience from the control room and saw their eyes opening wider and wider as the film shows men kissing men, women kissing women..."

The recordings were produced by engineer/producer Martin Brass, whose credits include previous work with Cale and Siouxie and the Banshees, and a recent album for A&M artists Blinker the Star. Brass was responsible for getting Soundfield involved. "I called up RePro [the British Recording Engineers and Producers organization] asking for remote trucks," says Brass, "and Jackie Dacosta gave me Soundfield's number. It appealed to me because Jonathon said he'd rent anything I wanted that he didn't have. Also, mobile trucks tend to have a lot of the same equipment, and I'm a tube head, a discrete head. I love all the old equipment."

The movies were shown in an old Italian-style theater, and the control room was assembled between band rehearsals over a period of two days. In this work, Brass and Miles were assisted by Soundfield's staff engineer Ian Morais and studio assistant Jamie Cookson. They set up a control room in one of the dressing rooms, which they draped with some of the theater curtains to deaden the acoustics. The musicians set up in the orchestra pit, which was raised enough to reveal the players

to the audience, but not so as to obscure the silver screen.

"I knew from the start that the music that John had written was very ambient in nature," says Brass, "and I desperately wanted to stay in the analog domain, and so Jonathon and I decided to go 15 ips Dolby SR with the multitrack. I asked if he could get his hands on a Studer 800, but Jonathon suggested a 3M M179, which was always one of my favorites and a machine that you don't see every day, so I agreed. With Ampex 456 1/4-inch reels, we could get a little over one hour per reel, and that would allow us to get both halves of the show." The Mackie board was used with ATC, Yamaha NS-10 and Acoustic Energy monitors.

Brass and Miles also collaborated on the mic and preamp selections. "Jonathon had sent me a brochure and photos about Soundfield," Brass says. "In one of the photos, I noticed a pair of STC (now Coles) 4038 ribbon mics, which are my favorite drum and overhead mics. These turned out to be perfect, as the back side of the ribbons would pick up the reflections from the high vaulted ceilings and give us a fantastic room sound. If he had the 4038s, then I had to have a Fairchild compressor to match, and I had just bought this pair of Geoffrey Daking mic pre's, which sound fantastic with those mics."

John Cale has an endorsement agreement with B&K, which supplied four 4011 mics for the show; three were used on vocals for Cale and the background singers, on whom Brass also used Summit tube compression, API preamps and 550A equalizers. The fourth 4011 was used to spot the cello. Four more B&Ks—lavaliers—were used on the string quartet. Moe Tucker's drums were miked with a Neumann

SHARON SHANNON'S "OUT THE GAP"

TRI-DIMENSIONAL SOUND

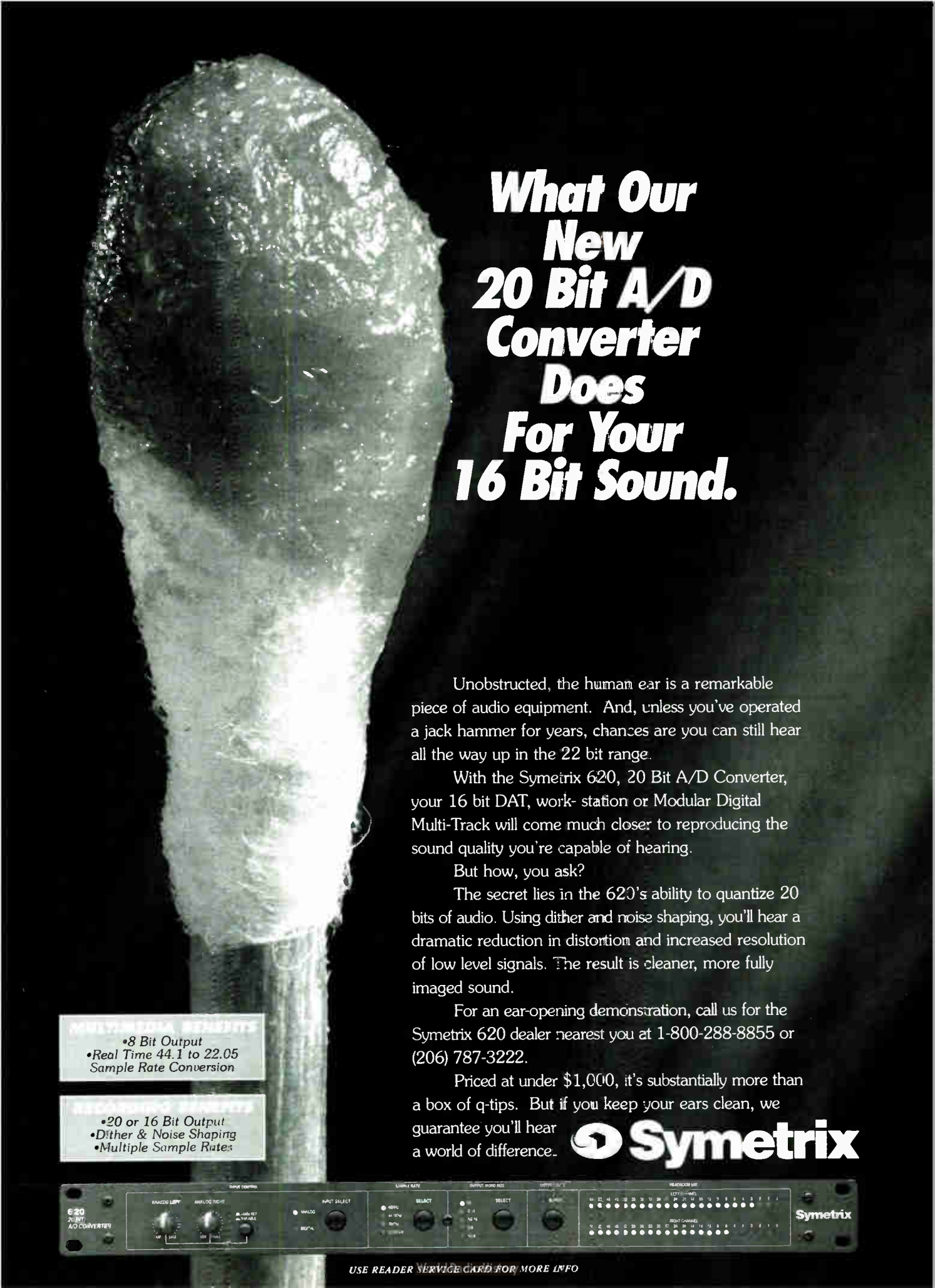
One minute you're in Ireland, and the next you're in Greece, and the next you're in Italy, and before you know it, you're back on the Emerald Isle again. That's just a part of the trip you take when you listen to the songs on accordion player Sharon Shannon's expressive and far-ranging Green Linnet release, *Out the Gap*. This album makes no show of its many ethnic influences, but turns gracefully and expertly from reel to polka and back again, with subtle reliance on instrumentation that the cultures share.

Shannon is a young Irish woman, from County Clare and a former member of traditional band Arcady and of Celt rock's Waterboys. Seven of the tracks on *Out the Gap*, her second solo effort, were recorded in Dublin at Westland Studios and Bow Lane Studios. The other five were made in Sparkside Studios in London and were produced and co-engineered by bassist/producer Denis Bovell, whose many production credits include The Slits, Bananarama, Edwyn Collins, Marvin Gaye and Steel Pulse. Bovell became acquainted with this project through Green Linnet's Dennis Desmond. "He called me up and said, 'Listen, I've got this young girl who plays the accordion, and I think you could do something together,'" Bovell says, "and he sent me a demo tape, and I was knocked out by her accordion playing. It was brilliant. I called him up and said 'Send her right over.'"

Shannon went to London with guitar player Donogh Hennessy and bassist Trevor Hutchinson, and Bovell hooked them up with his own bandmates: drummer Paul Blake, keyboardist Henry Holder and percussionist Everale "Fari" Forrest. Bovell says they sorted out the arrangements quickly, "because these are all real top-shape musicians," and went to work recording in Sparkside, which is equipped with a Trident Series 75 console and Acoustic Energy and Westlake Audio monitors. They recorded to a Soundcraft Series 760 multitrack, using an assortment of Neumann, Shure, AKG, Beyer and Sennheiser mics. All of the Bovell-produced songs were recorded live, with Shannon playing along to guide the band, but the final accordion tracks were added later.

The most unique aspect of this project was the way Bovell captured Shannon's instrument: "When I listened to her, I noticed that that thing is tri-dimensional," he explains. "You couldn't just pump it into one microphone. To get the real sound, it had to be like the president of America with a whole host of microphones—big propaganda style. Even two microphones wouldn't be enough, because there's the difference between when she's pulling it open, and the sound it gives in the center as it's open, and the sound it gives as it's closed with the wind rushing up through it. So I had to have one over the front in the middle, and two either side. I don't know if anyone else has ever done that." Bovell used a Neumann U87 for the midrange, a Calrec on bottom and an AKG C-212 on top. The effect is certainly big, and definitely worth the trip.

—Barbara Schultz


What Our New 20 Bit A/D Converter Does For Your 16 Bit Sound.
Unobstructed, the human ear is a remarkable piece of audio equipment. And, unless you've operated a jack hammer for years, chances are you can still hear all the way up in the 22 bit range.
With the Symetrix 620, 20 Bit A/D Converter, your 16 bit DAT, work- station or Modular Digital Multi-Track will come much closer to reproducing the sound quality you're capable of hearing.
But how, you ask?
The secret lies in the 620's ability to quantize 20 bits of audio. Using dither and noise shaping, you'll hear a dramatic reduction in distortion and increased resolution of low level signals. The result is cleaner, more fully imaged sound.
For an ear-opening demonstration, call us for the Symetrix 620 dealer nearest you at 1-800-288-8855 or (206) 787-3222.
Priced at under $1,000, it's substantially more than a box of q-tips. But if you keep your ears clean, we guarantee you'll hear a world of difference.
Symetrix
•8 Bit Output
•Real Time 44.1 to 22.05 Sample Rate Conversion
•20 or 16 Bit Output
•Dither & Noise Shaping
•Multiple Sample Rates
620
20 BIT A/D CONVERTER
Symetrix
USE READER SERVICE CARD FOR MORE INFO

U47 on kick and the STC 4038s on overheads. AKG 451s were used on cymbals and hi-hat. All the drum mics went through Soundfield's rack of Neve 1081 preamps. B.J. Cole's guitar was recorded through a Shure SM58 that went to a Focusrite mic pre/EQ and into a dbx 160. "Jonathon also brought a strange-looking tube DI box called a gas cooker," Brass says, "which we used on a 12-string guitar that David Soldier played on *Eat*. That we recorded using another Focusrite preamp.

"Cale himself was playing an array of synths and samplers," Brass continues, "and because the nature of these pieces was somewhat experimental, nobody knew exactly what instrument was going to be played when. I had Tom Gartland [the FOH engineer] give me a mix of keyboards on four sends, one stereo and two mono, so that I could always have control of the keys at a later date. He used these new Oram Sonics preamps and equalizers that really sound amazing and handled the 150 feet between us no problem." Gartland also sent Brass a stereo feed of the strings, which he was getting from DI boxes and RAT distortion pedals. "This way, when the strings went into guitar distortion mode, I got a stereo feed," says Brass. Otherwise, the feeds were direct from an onstage splitter box.

In a nutshell, Miles says, "We had either a tube or Class A preamp for every mic, and EQ and compression for about ten of those mics, as well, so everything was individually controlled. Everything was very mix-and-match, basically, because we're all freaks about recording. We were like kids in a toy shop." Miles was also responsible for the idea of using all in-ear monitors for the band, which Brass says worked well for the musicians and "made Tom's life easier by a factor of ten."

At press time, Brass was mixing the recording at New York's Sear Sound for release on Rykodisc UK. *Mix* got a chance to preview a preliminary mix, which reveals that the soundtracks lend an eerie distance to the films. The keyboard/synth and string sounds are flowing but somewhat alien-sounding, and the vocals include dreamy chant-like singing and spoken-word poetics. It's seemingly a fine companion to Warhol's at once magnifying and alienating reverence for the mundane, and a must-have for admirers of the Velvets/Warhol artistic relationship.

Brass says that the project as a whole went as smoothly as it could have, and he has developed an appreciation for Soundfield in specific and in concept. "The best thing about Soundfield," he muses, "is that, for someone like me who's very picky about the equipment I want to use, Jonathon can get whatever you want and put it into a rack. And the location thing is really what I'm all about, because I've produced a lot of indie bands, and the main problem of that is the first day you bring them into the studio, it's a big excitement, but every day after that is not as good. So, Soundfield's system is perfect, because you can take it anywhere and record in anything that isn't a recording studio, which is a terrible place to make a record, really; the atmosphere is not conducive to being natural. And if you want to make records, you have to get the people you're recording to be natural."

Soundfield Studios can be found on the Internet at http://www.hubcom.com/soundfield, via e-mail at jon@mileson.demon.co.uk or by telephone: 44/181/875-9712 ■

WARNING

EXCESSIVE POWER

Carver's new PM Series Amplifiers are designed specifically for pro-sound applications. Their rugged construction and reliability make them ideal for sustaining the abuses of the road while their accurate sound and excessive power make them perfect for critical studio applications. So DJ's, roadies and all other amp freaks who demand the power to perform, look no further... Carver PM Series Amplifiers.

Made in America, Played all over the World!

Load	PM700	PM950	PM1400
4Ω Stereo	350W	475W	700W
4Ω Mono	700W	950W	1400W

FIVE YEAR WARRANTY

CARVER
PROFESSIONAL

A division of Phoenix Gold International, Inc. • 9300 North Decatur • Portland, OR 97203 • Tel: 503.978.3344 • Fax: 503.978.3364

CHARLIE PEACOCK

INSIDE THE CONTEMPORARY CHRISTIAN MARKET

PHOTO: MARK TUCKER

Charlie Peacock produces Contemporary Christian (CC) records. He also lives in a converted church. The serendipity of the two is so perfect that I didn't bother to ask him if he planned it that way. What does surprise me is that his recording studio is in a separate structure, a converted, enlarged garage on the grounds, not in the church itself. The studio, Art House, comprises a spacious control room, adjoining a small but comfortable recording space, with a 26-input TAC Matchless console, Sony 3324 and MCI JH-24 digital and analog multitracks, and some nice outboard gear including vintage Neve Class A preamps. The offices that are part of the outbuilding are all wired for mic inputs, and the front office, complete with vaulted ceiling, doubles nicely as a drum room.

Peacock and his family live in the church building, a former Methodist sanctuary built in 1910 in what was then rural Bellvue, now a quickly growing residential neighborhood within an expanded Nashville. The church/residence is, however, also wired for recording, with mic, computer and telephone lines running in conduits between the buildings.

Peacock is round-faced and freckled, with sandy reddish curly hair. He looks a little like a mischievous choir boy. He began a triple career as a recording artist, composer and producer in the early 1980s. His demo work got him a reputation as a maverick producer willing to take chances in the then almost-invisible recording subculture of CC music. This put his own recording career (which included six records on Island Records, Sparrow Records and Exit Records, an affiliate of leading Christian label Word) on the back burner until his *Everything That's on My Mind* came out last summer. In December, he started his own *re:think* label to furnish the Christian, general and foreign markets with records, CD-ROMs and books. In fact, every record release will be a CD-ROM; the debut will be in April 1996.

In the meantime, Peacock has amassed considerable production credits, including records for leading Christian artists Lisa Bevill, Margaret Becker, Bob Carlisle, Al Green, Phil Keaggy, The 77s and others. He received a Grammy nomination in the Gospel category and a Dove Award nomination for his own record *The Secret of Time* in 1991. And his songwriting success has paralleled his production star: He co-wrote Amy Grant's "Every Heartbeat," which sold more than 4 million copies, as well as cuts for artists including Russ Taff, Philip Bailey, The Choir and Nia Peebles. He was recently named Gospel Music Producer of the Year by *American Songwriter* magazine and the Gospel Music Association.

The world of CC is, in a very real sense, where the alternative music format was six or seven years ago. Artists like Amy Grant and Michael English have made the transition to mainstream charts, putting a focus on the CC genre at a time when it's growing by leaps and bounds and moving beyond the confining definition of "Gospel." CC is an interesting market niche whose growth has significance in the larger picture, as America explores its own sense of ethics—politically, socially and spiritually—and CC's economics, pegged at tens of millions of dollars, give it more weight than might be initially apparent. So forgive me if I felt like asking Charlie Peacock some questions that have little to do with where he puts a microphone on a guitar amp.

I should start out by saying that, in my time in Nashville, I've spent more time talking to CC engineers and producers than I ever thought I would. It's not something you run into a lot in

BY DAN DALEY

2:00 a.m. The band just found the sound they've been looking for. Everyone's rockin'. Except you. **You're figuring out how to tell them the HIGH OUTPUT master you were using just "crapped out."**

Of course, you wouldn't be having this anxiety attack if you used new **BASF 900 *maxima*** High Output Mastering Tape. With 3 dB more output and 2 dB less noise than standard analogue mastering tapes, it is identical to the MOL and the signal–to–noise ratios of other high output masters. But it has the reel–to–reel reliability and consistency of BASF 911. Low rub off. Precision–manufactured. It's classic BASF. The kind of BASF tape studios have been relying on since 1934. As you turn to face the band (gulp), you make a vow. If you survive the next ten minutes, the first thing you'll do is contact BASF, 1–800–225–4350 (Fax:1–800–446–BASF); Canada 1–800–661–8273.

DEMAND IT.

BASF

RPG

MELAFLEX™

The Next Generation of Fire-Safe Reflection Control Foam From The Music Industry's Leading Acoustical Innovator

Reflections cause frequency coloration, image shifting and generally degrade the performance of the most sophisticated electronic equipment. Urethane foam has traditionally been used as an affordable solution to these problems, but presents a potential fire hazard. To provide safe foam reflection control, RPG developed MELAFLEX™, a new melamine acoustical foam which offers superior sound absorption, reflection control, fire safety and exciting new designer shapes, colors and textures. Listen to the music, not the room!

SoundWave

SoundRound

HIP™

...HEARING IS PRICELESS

Innovative Acoustics for the Digital Age

RPG Diffusor Systems, Inc.
651-C Commerce Drive, Upper Marlboro, MD 20772
Phone: (301) 249-0044 Fax: (301) 249-3912 E-mail: info@rpginc.com

HEARNET™
www.hearnet.com

USE READER SERVICE CARD FOR MORE INFO

New York or L.A. The market is growing, but within a closed loop. Or is there a wider market expansion afoot?

I think there has been tremendous growth in terms of reaching people who might otherwise have passed on Christian music simply because they didn't know it existed. So I think—I'm going to guess here—just from my royalty statements that I see a 15 to 20 percent increase just with the involvement of the bigger general market companies within our industry. That's widening the circle quite a bit.

Like the larger secular record companies buying up the Christian ones?

They are equipping them to expand the reach [of CC].

It certainly is equipping them for that in a marketing sense. But what amazes me consistently is that Christian producers and engineers are working in an expanding genre with relatively small recording budgets. Does that have an impact on the production?

Sometimes. First you have to understand that if you're working on a Christian album, you're probably not working for the same salary that people in the general market are. So, overall, the numbers are reduced. So, the expectations of what a person is going to get paid will be less than if you were going to be working on a Garth Brooks album.

What are the average budgets for Christian records now?

I would say the average beginning budget is about $45,000 to $50,000. But a number of the companies are increasing that to $75,000. They've increased capitalization, to make more money available to people who have worked very hard for very little money in the past. So because now that the money is there, rather than keeping it in terms of profit, they are spreading it around, and that's a very good move on their part.

Are producers' fees in Christian music scaled back along the same lines?

That really depends on the producer. But I think you see anywhere from a minimum of $750 per song advance to maybe $2,000 a song.

Can you make it up in the royalty/point structure?

No, for the most part that's also lower.

So how did you get into production?

Well, I started out being a songwriter, and as a result of that, I became an artist. And as a result of being an artist who could also manage things well, I was naturally inclined to organize people and say, "Let's get started, let's go, you go here, let's do that." Because of that natural inclination, some opportunities came up for me to produce, starting with countless demos on myself. The artist and producer dimensions of my career really started simultaneously, because I was producing my own records as well as producing other artists at the same time—and that was back in probably 1983, about 12 years ago, with a group called the 77s on a label called Exit that was distributed by Word. We went on to make a P&D deal with A&M, and then another one with Island Records. We released records to the general market through those deals. Considering the budgets CC engineers and producers have had to work with, I think that we're the best in the world [Laughs].

Sometimes people refer to the glassy Rhodes sound as "God's piano sound." I don't know that He's that keenly interested in that particular sound.

The production aspect of CC records seems to me—don't take this the wrong way—very reminiscent of late '70s, early '80s records: very compressed, glossy, tight-sounding records. They don't sound dated, but those elements are there. And I also noticed that a lot of the pianos sound like MOR/David Foster samples.

I think that's a generalization. There are a couple of key elements that you see in Christian music a lot that are borrowed from '80s pop, like David Foster's production. And I think that that's where there's a dated element. Sometimes people refer to the glassy Rhodes sound as "God's piano sound." But, that's probably why I try to stay away from it a little bit. I don't know that He's that keenly interested in that particular sound. [Laughs]

Is it unintentional or purposely thematic that these types of MOR sounds tend to recur on CC record produc-

tions? Or is it a production expediency?
I wouldn't say it was a production expediency. I'd have to say that more than anything, it's that particular person's aesthetic. I wouldn't say that it's an overall thing and a bunch of people got together and said this is what we're going to do.

Of course, you could say the same thing about rap, where you hear the same samples and production gags over and over again and which, when it started out, was beset by low budgets. In other words, is CC no different from any other genre in that you want to make the best record you can with the budget you have?
Yeah, because you realize that there are certain things that work in radio, and every once in a while there's the exception, but most of the time it is a system that wants to see a certain type or style of music, and I think that Christian radio would be no different from pop radio.

Has the CC industry matured to the point where it starts putting those restrictions and limitations on itself at the production stage?
Certainly, because it's more genre-specific; it has its audience, and they have their advertisers or, in the case of listener-supported radio, their supporters who may have a particular affection for a kind of music, and naturally, those programmers want to play that. Just like a commercial radio station wants to keep its listeners—they won't claim to be a rap station and then throw in opera.

Is that good or bad in the long run for CC?
Oh, I think it's bad from an artistic standpoint any time notions of genre narrow the possibilities. The Christian maintains that they are a person made in the image of God, the Creator. So if you believe that, then God's creation is pretty vast and pretty diverse, right? So to model that would mean to make things that have a diversity to them, and not a sameness, right? So in my opinion, while it is a short-run gain that we gain more listeners and we define a genre, in the long run we're sort of shooting ourselves in the foot, because we're narrowing what it means to make music to the glory of God.

Have you as a producer ever run into a conflict with a Christian label in this regard?
Yeah, that happens all the time. It's just that when you're a big boy, you learn to choose your battles wisely. There's a time to acquiesce and say, I wish it wasn't like this, but it's negotiable at this point. And then there's a time to just say simply this is a nonnegotiable. If you're not interested in putting out this record, that's fine with me. I'll go down the street.

I've also noticed that you and other Christian producers have to move from genre to genre within CC. You do a pop record one day with one artist, an R&B record the next day with another. You seem to be facile in that regard. In fact, I've noticed that some CC producers—yourself included—have to move between genres on the same record. The first two tracks are clearly R&B, and suddenly I'm hearing a rock song on the third track. Is that the nature of the business in CC?
The answer to the first question is that there is a limited amount of people in the talent pool who are eclectic and skilled enough to bounce between [genres]. It's because the industry is small enough that an individual could not support their family, their studio and all this by just producing one act. They couldn't be a Greg Brown just producing Travis Tritt. So the people who have excelled and done well are generally people who get the job done in the artist's eyes, the record company's eyes or the public's eyes. There will be some elements, I think, that are consistent through a record that we'll try to tie together, but frankly, some songs just want to be what they want to be. I think that this is one of the things that are really distinctive about our industry.

As an example, say we've only got 100,000 potential music buyers out there, and that 100,000 people represent ten different genres or styles. If we want to capture that 100,000, because it takes that 100,000 [in sales] to fund what we do, to take care of our families and continue to make records, then it's just natural that our product will show that kind of diversity. Because we wouldn't necessarily want to have ten pieces of product with only 10,000 units sold on each one. In the [secular music] market, you have this whole world population that can support tremendous diversity. You have a big enough demographic of blues lovers, a big enough demographic of jazz lovers, whatever it is. It can support these microcosms. We're just one microcosm supporting all these different styles, and that's why you see [different genres] on a lot of records.

I'm sort of from the Duke Ellington School—there's only two kinds of music: good music and bad music. I try my very best, in the context I have to work with, to create good music.

Does that change you as a producer?
I don't know what explanation to give for that, other than I just see it as that's God's provision to me, equipping me for a particular purpose and moment in time. I like a lot of different kinds of music. I'm sort of from the Duke Ellington School—there's only two kinds of music: good music and bad music. I try my very best, in the context I have to work with, to create good music.

Here in Nashville, most country records are made by a relative handful of producers. There's a parallel in CC. Where did that come from in Christian music? Does it borrow from the Nashville paradigm because CC is also centered here?
I think Nashville definitely has something to do with it. We're a very small town, really. We don't have that kind of cultural diversity you would find in L.A., Miami or NYC. I think when you talk about some of the sameness, maybe casting it in a positive light it would be called "consistency," and in a negative light it might be called "sameness." That's a real challenge to me because I might be comfortable using Player A a lot because he has some of the same kinds of diversity skills that I have that I know I can count on. But sometimes I have to go out of my way to create situations and scenarios that will affect the project so that things change. Recently on the new *Out of the Grey* record, I felt that things were getting too much the same, even though everyone was doing a great job. I needed to throw a wrench in it somehow, so I brought in a couple of players from New York—Todd Turkisher on drums and Paul Socolow on bass—and brought them here to play on the record, and it did change things. And I brought in Elliot Scheiner

to track and mix some of the cuts.

Was that Elliot's first experience working on a Contemporary Christian record?

Yes. He really liked the music. We talked about the Christian content. Elliot is Jewish. He loved Christine [Denté]'s voice. His feeling was that you should be selling millions of records with a voice like this. She should be huge. He immediately understood that frustration.

How did Art House come about? It's a substantial facility, but since you do all your work here, is it essentially a project studio? And are project studios affecting Contemporary Christian music?

In some ways they have enabled it because if I own my own studio and I have a limited budget, yet I have a reasonable aesthetic and a desire for excellence, where do you think the first compromise in terms of payment would be? It would be to the studio. Early on, I used to shave on projects all the time; I would shave on the amount of money due to me to pay the equipment rentals. I try not to do that anymore because it tends to breed resentment. It's better to just say it's not possible to continue on without further financing.

Do the labels basically expect you to do it here?

Absolutely not. They have no expectation of that. The producer gets to pick the studio and the engineers to work with. Labels really have very little to say about it. And sometimes they may give some input or provide some great opportunities. For instance, Peter York, who I worked with at Sparrow, would call me up and say are you getting close to mix, because so-and-so called me from some studio trying to fill some time, and we can get a great rate on a mix there.

Guitars are a recurring thematic instrument in your work—interesting since you're a keyboard player.

I've been concentrating on guitars a lot lately since I'm so sick of keyboards. [Laughs] My production style with guitars is, I edit. I hire someone based on what I think they do well and ask them their opinion. Then I retain the right to edit. Then we begin to shape a part together.

Any special techniques for guitars?

It's all mixed up; sometimes I print effects, sometimes not. It all depends upon the creative moment.

You sound more like a casting director.

I cast based on a role on the record. One musician may be as good as the other but one might be very talkative and high-strung, and the artist might be

very laid-back. So that person doesn't get the gig.

Music—rock in particular—has always moved itself along on phrases that encompass a philosophy: live fast, die young; the four major studio food groups: nicotine, grease, alcohol, etc. Christian music of course has its own overarching philosophy, a religious one. Is there a line in the studio between the two? Does it move around? Are you ever just a musician or a producer, as opposed to a Christian one?

It permeates everything that I do, because my desire to do good work, my desire for excellence is to God first, to mirror the excellence that is God's creation.

That sounds like a very frustrating goal. Can you ever achieve it?

Not perfection, but it's a reasonable way to point one's life. It's not uncommon for us to begin a session with prayer. If someone's kid is sick, to pray for him. If someone who was used to working in New York walked into that situation they'd say this is something unusual.

Are Christian productions moving toward the mainstream? Are the lyrical messages going to become more obscure and subliminal than they've already become? And as the money gets better will it move to a more neutral rubric, as it has in Christian country, which now some call "positive country," in search of a wider audience?

I hope not. If you listen to most Christian lyrics on Top 40 radio, they'd be like you said, positive, a bit bland. They don't always reflect life as we know it: Life is complicated, dangerous, unpredictable. But that doesn't mean that life isn't joyous. There should be songs about that too. But to sing only about that is to have an incomplete life.

Pop music has historically often exulted in having meaningless lyrics. The thrust is the beat, the music. The lyric is just another component like a guitar or a drum sound. Can that happen in Christian music? What are you producing in Christian music, the music or the message?

I'm producing the whole song. I'm not making a division between music and content. If a song has a problem musically, I'd work on that. The same for the content. I give equal consideration to both. I'm not from the school that says the message is the most important thing. I consider the form to be equally important. ■

Creative control, superlative sound and uncompromising support — Lexicon's commitment to the audio professional.

STUDIO SERIES

The PCM 90 & PCM 80: so good, you'll need both.

25 YEARS OF DIGITAL AUDIO

Introducing the ***PCM 90 Digital Reverberator****. It's the latest addition to Lexicon's great-sounding line of effects systems, joining the acclaimed* ***PCM 80 Effects Processor****. Individually, they're impressive: together, they're phenomenal.*

The PCM 90: optimized for reverb. 250 new programs from Lexicon's most famous algorithms — specifically for music production, audio post and sound design — drawn from Lexicon's top-of-the-line processors. Available for the first time in a compact, affordable package.

The new PCM 90 includes 250 all-new presets – from Lexicon's most powerful reverb algorithms. The PCM 80 features 200 presets, with a wealth of stunning effects capabilities and two new algorithm cards.

The PCM 80: effects with a capital 'E'. Its delays, modulation, EQ, time domain and spatialization effects will leave you breathless. (And as you'd expect from the descendant of the famous PCM 70, it's reverbs are superb.)

Which to buy? Take our advice — get both. The ***PCM 90*** *and* ***PCM 80*** *are totally complementary. The ultimate quality reverb; the leader in astounding effects; both with that special Lexicon sound. Try them at your authorized Lexicon dealer — you'll want to keep this perfect pair together.*

lexicon

Heard In All The Right Places

Contact: 100 Beaver Street, Waltham, MA 02154 Tel: 617/736-0300 Fax: 617/891-0340 E-Mail: 71333.434@compuserve.com

A Harman International Company

USE READER SERVICE CARD FOR MORE INFO

BY TOM KENNY

POST·SCRIPT

SOUND FOR FILM

WHADIDHESAY?

By Larry Blake

When I was learning to play basketball (in the mid-'60s in the New Orleans Recreation Department "Biddy" League), we were drilled rigorously in the fundamentals, such as crisp bounce passes and using both hands to dribble and shoot lay-ups. (With regard to doing ambidextrous lay-ups, I can remember breaking down in tears—I was 11 years old, after all—telling coach Tom D'Angelo: "*I can't do it!*" And, of course, to this day I thank him for being persistent.) We also played by the rules strictly: If you lost your pivot foot or if you took more than the allotted step-and-a-half on the way to the basket, you were called for traveling and you didn't argue. The same went if you were "palming" the ball, momentarily suspending it in the air while dribbling.

Nowadays, it's almost as if these rules don't exist, especially in the NBA—which has the best players in the world, I might add. Barely a minute goes by before someone takes so many steps while going to the hoop that you expect to see them referring to an American Automobile Association Triptik.

I say all of this by way of putting perspective on the approach that is taken to certain fundamentals of my adult passion, film sound (although I would sign away the possibility of my ever winning a Best Sound Oscar if I could dunk a basketball just one time). Specifically, I'm referring to the way dialog is handled—how it sounds and, perhaps more important, how intelligible it is.

In the glory days of Hollywood, the '30s and '40s, you almost never had a problem following what the actors were saying. It didn't matter whether it was an A+ picture with a $3-million budget or a B picture shot in three weeks; you could understand every word. *Today*, it doesn't matter that a film costs $60 million to make and is recorded and mixed by some of the best and most experienced (and, I might add, highest-paid) people in the industry, using state-of-the-art equipment in the best-known studios...the dialog quality, as a rule, sucks. Come to think of it, my analogy doesn't fit that well after all, because even though Michael Jordan travels a lot more than any starting Biddy guard did in 1966, he's still a better ballplayer, whereas today's average mix suffers by comparison to those of yesteryear, at least by the dialog yardstick.

ILLUSTRATION: TIM GLEASON

Why is this so? Why is it that a process in which it can (and perhaps *should*) be so simple to do right is getting worse across the board? Let's address the issues of intelligibility and sonority separately.

The given wisdom for dialog being hard to understand is that music and sound effects are too loud relative to average dialog level, resulting in a no-win situation: If the film is played back at standard mix level, a large percentage of the words will be lost amid the cacophony. And because the whole mix is too damn loud (I'm sorry, I'm breaking my December column's promise not to talk about this any more), when the main fader is lowered as a result of patron complaints, the dialog is often below the popcorn/cellophane wrapper noise floor. "*Whadidhesay?*"

The only way to make explosions and music cues loud is to make them loud *relative to* the dialog. Increasing the average dialog level to help intelligibility will result in the actors screaming at each other in scenes *sans* explosions. The only after-the-mix solution is to ask theaters to raise the center channel a few dB relative to left and right during the runs of specific films. In fact, I know of some otherwise-knowledgeable theater service people who routinely align theaters with a center-channel bump to compensate for today's mixes. Brrrrh, this is scary stuff, and as much as I want to say that this is a travesty and will screw up *my* careful left-center-right balance, what else can the poor theater manager do? (Let me be perfectly clear: I don't agree with this type of creative misalignment.)

Notice that I have held both music and sound effects equally responsible for the loudness factor. It cracks me up to read interviews with certain composers complaining about how all the stupid sound effects (a.k.a. "noises") get in the way of their pre-

—CONTINUED ON PAGE 139

MUSIC EDITING IN NEW YORK

By Loren Alldrin

Music has always been the shortest, most direct path between the glowing screen and a viewer's emotions. Film and television producers know this well—they're willing to spend a great deal of time and money choosing pieces of music to match every scene or segment. And once the pieces are drawn from original score or production music libraries, it's the role of the music editor to help turn these raw materials into a cohesive whole.

New York is churning out an impressive number of film and TV productions, most featuring the work of talented music editors. We talked to three such engineers, getting a glimpse into the sophisticated New York music-editing scene.

SUSAN PELINO
IMAGE GROUP POST

Traditionally, documentary filmmakers have used music to enhance scenes that didn't already have music, or to smooth transitions between sections. For *The Universal Story*, an 80-year retrospective of the work of Universal Pictures, Tophat Productions' David Heeley and Joan Kramer took music one step further. Senior Audio Mixer Susan Pelino of Image Group Post explains: "This picture was different in that the job of the composer (Michael Levine) and myself was to 'augment' the old films with music," she says. "The film covers everything from silent films up through *Waterworld*. I had clips ranging from the first talkies up to modern films—a lot of really different-sounding elements. We covered the original horror classics, like *Phantom of the Opera*, to Abbott and Costello to Hitchcock's *The Birds*. The first hour of the project, with the older films, had the majority of the scoring. In *Phantom of the Opera*, for example, Michael composed music based on the *Phantom* theme, and you hear that during the silent part of the clip. In the case of *The Bride of Frankenstein*, we actually laid in new music in time with the original music."

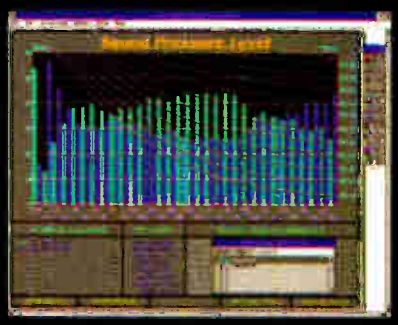
To movie purists, such doctoring of an original score is akin to heresy. "We didn't overdo it," Pelino reassures. "There's a fine line you don't want to cross in dealing with these old classics. I kept new scoring down, just to bring the sound of these older films up to today's standards. In the case of *Bride of Frankenstein*, I mixed the new music in mono, to make it sound more realistic, and I did some filtering to make it sound like the earlier music. The ultimate goal was to make the audience unaware that we had scored the music. At the same time, we didn't want the music that was sewing all the segments together to be jolting and different because of its fidelity. So I manipulated the new music to match the older cues that surrounded it. *The Universal Story* had to feel like one seamless two-hour piece. Most of the current films had great-sounding stereo or surround music already. We really didn't touch these musically. There was the occasional sting

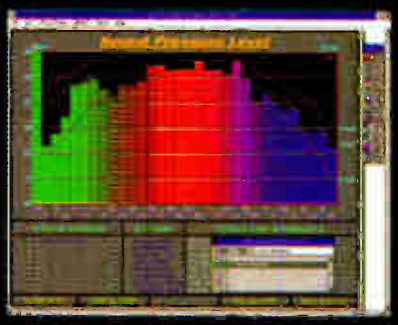
—CONTINUED ON PAGE 140

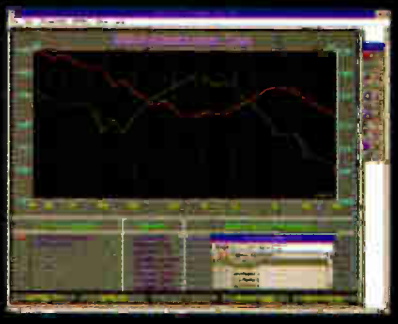
David Browning, audio engineer at National Sound

PHOTO: COURTESY OF NATIONAL VIDEO CENTER

R T A







Today's ever improving audio standards, and increasingly technical and creative acoustic applications, require precision realtime acoustic measurements and documentation more than ever before.

Whether your application is home theater, cinema, church, or stadium installations, the pcRTA has powerful features and solutions for you.

PAC3 - The Portable Solution If your measurement requirements demand portability, we've got the answer. The PAC3 provides a serial interface to laptop or other computers, and more...

The pcRTA gives you affordable laboratory precision and quality with all the power and features of a PC-based system. Offering 4-mic multiplexing, the pcRTA makes surround sound alignment and spatial averaging a snap. Moreover it provides built-in alignment curves for NC, SMPTE X/N, and more. Complete with ANSI filters A,B,C,D,E and a host of other features to numerous to mention!

Call Today for a free Demo Disk!
Tel: (503) 620-3044

LinearX Systems Inc
7556 SW Bridgeport Rd
Portland, OR 97224 USA
TEL: (503) 620-3044 / FAX: (503) 598-9258
BBS: (503) 598-9326 / Internet: info@linearx.com

LINEAR X

International Dealers: **Agentina**:Interface SRL (54-1)741-1389/ **Australia**:ME Technologies 61(0)65-50-2254/ **Austria**:Audiomax 49(0)71-31-162225/ **Belgium**:Belram 32(0)2-736-50-00/ **Brazil**:SDS Equipamentos 55(0)11-887-7597/ **Canada**:Gerraudio 416-696-2779/ **China**:HiVi Research (852)2-556-9619/ **Denmark,Finland**:A&T Ljudproduktion 46(0)8-623-08-70/ **France**:Belram 32(0)2-736-50-00/ **Germany**:Audiomax 49-71-31-162225/ **Indonesia**:Ken's Audio 62(0)21-639-5806/ **Italy**:Outline snc 39-30-3581341/ **Korea**: Sammi Sound:82(02)463-0394/ **Luxembourg**:Belram 32(0)2-736-50-00/ **Malaysia**:AUVI 65-283-2544/ **New Zealand**:ME Technologies 61-65-50-2254 **Norway**:A&T Ljudproduktion 46(0)8-623-08-70/ **Phillipines**:Dai-Ichi Denshi (63)2631-6980/ **Poland**:Inter-Americom 48(22)43-23-34/ **Singapore**: AUVI 65-283-2544 **Spain**:Audio Stage Design 34(94)620-27-47/ **Sweden**:A&T Ljudproduction 46(0)8-623-08-70/ **Switzerland**:Good Vibes Ltd. 41-56-82-5020/ **Taiwan**:Gestion Taycan Intl 886-2-562-3883/ **Thailand**:AUVI 65-283-2544/ **The Netherlands**:Duran Audio 31-41-80-15583/ **UK(England)**:Munro Assoc 44(0)171-403-3808.

—FROM PAGE 136, SOUND FOR FILM

cious music. As if moviegoers left the kids with the babysitter so they could go hear music. Give it a rest, fellows, *everybody* is crowding the track these days, and what audiences really care about is dialog.

Some might find it odd that I am complaining about the *quality* of movie dialog these days. One might think that if dialog is unintelligible, then mixers must not be making it midrange-y and sharp, which is, of course, the way movie dialog should sound. Not!

I think these days it's the worst of both worlds, and no, I don't believe that it's an either/or situation—either it sounds full-range and fat or it sounds clean. I've also tried to reduce the problem to simple technical issues such as choice of equipment, but I can't get a handle on that, either. I've heard some great dialog jobs and later found out that standard-issue console graphic EQs were used. (It still does intrigue me that so few mixers will use high-quality outboard equalizers for dialog work; I think the quality difference over the program EQ found in most consoles can be dramatic.)

So much of this discussion can be reduced to laziness on the part of rerecording mixers, because it is easier and quicker to create a consistent whole by stripping away the low end and running the whole program through Dolby Cat 43 noise reduction units. Easier, yes; consistent, yes; crappy-sounding, yes. I think that so many of these problems can be dealt with by solid dialog editing and careful crossfading at the mix. Single-ended noise reduction in any form (gates, Cat 43/430), as a rule, should wait for the final mix when everything comes together, to see what will be hidden under music and effects.

Another factor keeping some mixers from achieving fat, full-range dialog is fear that it will creep into subwoofers courtesy of optical bass extension in theaters. While this is a genuine worry, it has diminished with the success of the digital formats, which have subwoofers discretely assigned and not derived from the front channels.

The stripping of tracks, I believe, began in the '70s when location shooting became the norm. Another problem that arose during that period was the development of the Arriflex 35BL series of "silent" cameras, which never really were. The total effect was that UREI "Little Dippers" and Dolby Cat 43 units became all the rage in post-production. The newer Cat 430 is, I think, better, but still can have the effect of taking the life out of a production track. The toughest trick is to keep your eyes on the prize and not paint yourself into a corner by removing both the noise *and* the unique character of the voice.

In defense of my post-production brothers and sisters, some tracks arrive with no low end to remove! However, I shouldn't talk any further about this pet peeve of mine because there's already so much bad blood between the production and post-production camps. (I remember with perverse fondness overhearing a production mixer say how he didn't talk with post-production sound people because "they always ruin his tracks anyway.")

One thing that would help the Hatfield/McCoy situation is for production and post-production people to actively seek each other out as early as possible in a film's pre-production/production/post-production cycle. And when the production tracks are edited and premixed, post people should give constructive criticism (and glowing compliments, if applicable), because otherwise, how can they expect production people to know what really happens to their tracks? I've heard incredibly incorrect assumptions come out of the mouths of some of the best production mixers, who simply were stretching their assumptions way too thin.

For example, when using a stereo field recorder such as a DAT or a Nagra IV-S and recording separate tracks (a radio mic and a boom, or two radios), there is no benefit to lowering the fader between words to reduce noise. The sound editor will then be unable to find good fill for a given track. Because virtually all dialog editing these days is done on workstations, it's easy to fill and smooth out individual tracks in multitrack material, something that was virtually impossible to do on film.

Room tone is sometimes a sticky and misunderstood subject. Recording room tone as a separate take is most helpful when there is a constant, unavoidable noise throughout a scene (such as hiss from a lantern). This can be laid in for the length of the scene to create continuity, especially if portions of the dialog are looped. However, the best fill will always come from the actual take, especially with regard to specific camera noise or discrete tone. Another big help to sound editors is when the off-camera actors are boomed; this

can be a real scene-saver in helping cheat lines. Production mixers should do this whenever possible.

The worst-case situation—the post people are hired after production has ended and, therefore, any talk is too late to have any effect on the production track—is still not hopeless. *Any* conversation between the two camps will be instructive, if only because neither side *really* knows what problems the other one faces.

I should make it clear here that the real villain in this equation is, oddly enough, the person most affected by shoddy dialog work: the director. We'd like to think that directors are high, exalted, mystic rulers and should know enough to not allow their dialog to be unintelligible or bad-sounding. We need to remind them that the audience will hear the film for the first (and probably last) time in a noisy room; everybody at the mix knows what the actors are saying *only* because it's been heard a hundred times.

Some old-timers date a change in attitudes to the influx of directors and producers from television. (Perhaps it should be stated as the *second* influx of TV directors, since the first—those who cut their teeth on live TV in the '50s—would seem to have a disinclination for looping.) Whatever led to their arrival on the scene, the "We'll loop it" or "fix it in post" attitudes are firmly entrenched in all parts of the production process, not just by directors. It's easy for assistant directors, unit production managers and cinematographers to spout those cliches because they don't have to deal with the fallout. I read an interview a few years ago with a top cinematographer who had the gall to say that there was no need to really worry about camera noise because ADR technology had improved so much. Give me strength!

There are times when ADR is unavoidable, and we have to make the best of it. Ask the production mixer not only what microphone was used, but also where it was positioned. Of course, the greatest curse is to use the double-whammy of a non-production microphone (like, say, an RE-20) right up to the actor's mouth, voice-over-style. There is *nothing* that the re-recording mixer can do to prevent such a recording from instantaneously turning a gritty urban drama into the latest Hercules epic.

Be intelligible and sonorous in writing your opinions of the state of dialog recording to PO Box 24609, New Orleans, LA 70184, fax 504/488-5139, or via the Internet: swelltone@aol.com. ■

Larry Blake is a sound editor/re-recording mixer who lives in New Orleans for reasons too numerous to mention, although he has been spending precious little time there recently because he can't yet say that it has a world-class post-production sound facility.

—FROM PAGE 137, MUSIC EDITING IN NEW YORK
between films, but that's about it.

"We spent two weeks on the mix," Pelino continues. "The first week was basically spent laying out all the tracks, doing editing on the voices. A lot of narration was done by host Richard Dreyfuss on-camera, with some voice-over on DAT. We also put in all the film clips, as well as interviews of celebrities about the different films. In the second week, we added all the music and mixed the piece. I mixed the film in Dolby Surround, with a 32-input SSL G Series console, two ScreenSound systems and a Sony 3324 digital multitrack. All this was slaved to the Digital Betacam master. Everything was built and mixed in ScreenSound, which made it possible for us to line everything up with the old cues. We could have done this movie with traditional tools, but it would have taken a lot more time. I have nothing against the old ways of doing things—I did a lot of ¼-inch editing and mixing on tape—but today, things are being done in about a

POST NOTES

People: Beth Fraikorn has been named general manager for post production operations at Disney MGM's Orlando facility...**David Goodman** was appointed director of marketing for Sound Trax Studios in Burbank...**Companies**: **Robert Berke Sound** in San Francisco recently installed the first Otari Status digitally controlled console...**Fox Tape Engineering** has added its *sixth* SSL Scenaria system for use in all forms of audio post/broadcast...**Music Annex Audio Post Production** (San Francisco) opened SoundLab, an offline audio suite based on a Pro Tools III editing system, Avid video editing and Sony PCM 800 8-track modular digital multitrack. Some of the first projects icluded a series of one-hour animated films, with editing by Steve Limonoff and mixing by Will Harvey...Matsushita and NBC have ordered 51 **Graham-Patten D/ESAM** Series digital edit suite mixers for use in the broadcast center of the Atlanta Summer Olympics...**Serafine Sound** in Venice, Calif, has taken delivery of Penny & Giles' MM16 MIDI Management System to provide snapshot control for 32 channels of MegaMix D-to-A converters...CBS Television put in a **Marshall Long Acoustics** ML/A 1000 audio processing system for transparent audio switching on *The Late Show With David Letterman*...Trew Audio in Nashville purchased a Nagra D 4-channel digital recorder and has made it available for rental...Lucasfilm's **THX Theatre Alignment Program** (TAP) will now be used on major Warner Bros. releases (already available on selected Twentieth Century Fox and Universal pictures), where an 800 number will be listed on the end credits for selected films, and moviegoers can report presentation problems directly or via the World Wide Web at http://www.thx.com...**Projects:** David Newman and engineer Marty Frazu of **D&K Music** (Los Angeles) were scoring Eddie Murphy's *The Nutty Professor* and Danny DeVito's *Matilda* on a Euphonix CS2000...Bob Giamarco and Tom Jucarone of **East Side Audio** in Manhattan mixed a series of recent Club Med spots, with 3-D visuals by sister company Post Perfect and music by tomandandy...**Century III at Universal Studios** (Orlando, Fla.) recently handled all audio production and post for for ABC's TV movie *Bermuda Triangle*. ■

third of the time. Without ScreenSound, this movie probably would have taken us a good month, if not more."

For all its challenges, *The Universal Story* had its share of highlights as well. "Mixing *The Birds* in surround sound," Pelino recalls, "was a lot of fun."

CHRIS DROZDOWSKI
PHOTOMAG

At Photomag, mixing engineer Chris Drozdowski is called on regularly to do audio post-production for TV spots, with some long-form post thrown in. He cuts together 25 weekly promos for the popular *Richard Bey Show*, each spot drawing from eight or nine different pieces of music. This kind of production is nothing new for TV, but how the music comes to Photomag is not so common.

"The music houses that write music for spots are now splitting tracks, getting their music to the mixing houses in finer and finer slices. They're giving you anywhere from 4- to 10-track stripes on DAT; I'm half expecting to receive separate kick and hi-hat someday! When you're editing the music, you can cut across tracks and get a better sound than cutting across a full mix. Before, if the client needed to do an edit, they'd go back to the music house to get another version. Now, we're going into these split mixes and doing more of a custom mix. Most of the music comes in on DAT, but the DA-88 format is just starting to take hold."

Such a system for supplying custom music gives the music editor many more options, resulting in a more seamless finished product. But for all its benefits, Drozdowski finds music delivery on separate tracks to be a step *backward* in some ways. "It's a step back in that, even in the days of full-coat and film stripes, you used to be able to just put up your music and mix," he says. "Now, just to get the music into your machine takes five or six passes, and you then have to trim the tracks and pick them up, which could take half an hour. It's worse than working on film in that respect. But everyone's willing to do it, even though it takes more time just to get everything lined up and remixed."

Drozdowski finds that both custom-scored and stock music have taken a definite jump in quality. "The advances the scoring houses have made, especially with their electronics, allow them to put pretty high-quality stuff in the hands of a lot more people. Composers are out there writing music, charging

less than a client would pay for a piece of edited stock. Then the client gets to have it their way. Stock music libraries have improved unbelievably, as well. I've been fooled once or twice in the past year thinking a stock piece was off a popular album. The folks making stock libraries are getting really good musicians. [But] I'm still seeing more scoring than stock, at least here at Photomag. Industrials seem to use more music editing, but there's less of it here on the high end."

Although samplers have long been a regular tool among music producers, Drozdowski notes that they're just now being used more regularly for music editing. He has installed Akai S1000 and 3200 models. "The sampler is an invaluable tool for sweetening and covering up the not-so-nice edit. I've just implemented a sampler system in our studio in the last 18 months. I find myself, more often than not, using the sampler to extend a note or chord to fill out a spot. The sampler is nothing new, at least in the world of music. In post, though, samplers seem to be becoming more common."

Drozdowski finds that the knowledge of his clients is keeping pace with the advances in music quality and electronics. "The clients are more savvy. The people that are at the session seem to know more about music, about what's going on," he says. "In the earlier days, folks used to defer to what little knowledge the engineer had. The clients didn't have even a basic knowledge of music theory. You'd have to say, 'We can't cut from here to here, because the piece has modulated.' Now they're suggesting specific edits. It's made my job more of a partnership. Maybe it's because younger people are moving up through the ranks—I haven't cut a spot for someone that was clueless in a long time."

DAVID BROWNING
NATIONAL SOUND

National Sound engineer David Browning performs the whole gamut of audio post duties, mostly on long-form TV productions. Past credits include numerous specials for The Discovery Channel and National Geographic, and he recently finished a film on its way to the Sundance Film Festival.

As in most facilities, National engineers rely on digital audio workstations for music editing. The company uses NED Post Pros, integrated with the Synclavier, exclusively, run through a Euphonix console with 24 channels of dynamics. But Browning finds the DAWs' speed to be paying off in areas other than just a quicker turnaround. "As the technology progresses," he says, "I get the impression things aren't really happening faster. You don't end up doing sessions or segments of shows quicker, but you certainly explore more possibilities. Clients are more likely to try alternate approaches because of the speed at which work is happening. A few years ago, people came in with more fixed ideas of how things would go. If they had music composed, they were more inclined to just use exactly what the composer offered, or not use it at all. Today, they're more likely to try options, instead of just saying, 'That works,'or 'That doesn't.' They might experiment with different ways of using the music, try different cuts of the music, even try different tempos."

Browning notes that clients are quickly catching on to the benefits of the DAW. "Because of the proliferation of the lower-end gear," he says, "more people are educated as to what can be done. They come in with an idea of the flexibility of the system. And in addition to trying things differently, we can now blend things together in ways that weren't really practical before. In the past, the music has been more in the hands of the composer. Today, clients are taking more direct control of the music." ■

IF YOU'RE SERIOUS ABOUT AUDIO POST-PRODUCTION...

Photo courtesy of Skywalker Sound

Avid AudioVision® offers a rich feature set targeted specifically for audio post production applications. Winner of the 1995 TEC Award, Avid AudioVision is the system of choice for serious audio post-production professionals. Proven on high profile projects, from television commercials and episodics, to major motion pictures, Avid AudioVision makes the most complex editing tasks easy.

No other digital audio work-station gives you so much power within one application!

- True Integrated Random Access Digital Picture
- Media Composer® Composition and Media File Compatibility
- ADR / Loop Record™ Tool for Dialogue and Foley
- Customizable Quick Search Database
- Clip-based 4-Band Real-time EQ
- The Industry's Most Powerful Project Management Tools
- Variable Width Infinite Notch Filter
- Edit Video and Audio Together in the Timeline
- Integrated EDL Auto Conform and Extensive Machine Control
- Open Architecture Supports Third Party Plug-ins
- Integrated DSP – Time Compression, Pitch Shift *and more*
- Digidesign® Pro Tools® Session File Compatibility
- Industry's only ATM High-Speed Network Solution

Call 1-800-949-AVID today for more information or a demonstration.

Hafler®
PROFESSIONAL

Brilliant Award Winning *Amplifiers*

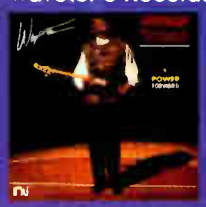
Musicians • Broadcasters • Engineers • Producers... It's not a coincidence!

Thank you from your friends at Hafler!


Wally Traugott
Capitol Records


Pat Scholes
Ardent Studios


Mark Egan
Wavetone Records


Waymar Tisdale
Recording Artist


Erick Labson
MCA Music Media


Tom Jung
DMP Records


Ronnie Montrose
Recording Artist


Pat Weber
Engineering


Chaton
Recordings


Rusty Milner
Marshal. Tucker
Band

P3000 Winner Technical Excellence and Creativity Award

P1500 Winner Radio World Cool Stuff Award National Association of Broadcasters

NEW!

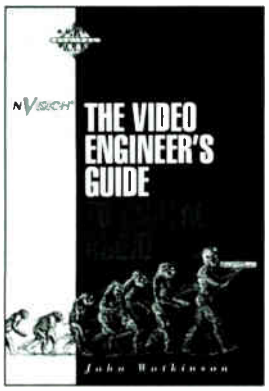

P7000 Trans•nova
D.I.A.B.L.O.


9303/9505 Trans•nova
D.I.A.B.L.O.

HAFLER PROFESSIONAL, A DIVISION OF ROCKFORD CORPORATION • TEMPE, ARIZONA 85281 USA
1-800-366-1619 • INTERNATIONAL FAX 602-967-8132 • IN CANADA, CONTACT CABLE TEK 604-942-1001

MADE IN THE USA

New Products For Film/Video Sound



NVISION VIDEO GUIDE

NVision (Nevada City, CA) introduces *The Video Engineer's Guide to Digital Audio*, a 96-page user handbook for video engineers. The illustrated guide, written by John Watkinson, is "intended to provide video facilities with useful, practical information for use while designing fully integrated digital video and audio systems," says NVision's Nigel Spratling. The book is available through Opamp Technical Books (800/468-4322) and lists for $19.95.

Circle 190 on Reader Service Card

STUDER VIDEOMIX

The latest Dyaxis feature from Studer Editech (Menlo Park, CA), VideoMix integrates digital video with Dyaxis audio editing and features full-motion, full-speed synchronous digital video playback and synchronous audio/video scrubbing and shuttling. VideoMix also offers field-accurate display in pause, genlock to external sync capability, both PAL and NTSC support (50 or 60 fields/sec) and full frame size. Based around Radius' VideoVision Studio, the VideoMix system includes a NuBus card and video breakout box, and offers 4 GB of high-speed A/V-spec Seagate hard disk storage (multiple drives optional).

Circle 191 on Reader Service Card

L2 PLATINUM SOUNDS

The latest release from L2 Communications (Santa Monica, CA) is *Platinum Sounds for the 21st Century*, a sound effects library that features award-winning selections from the library of sound designer Frank Serafine. The ten-disc set includes effects from movies, television shows and media productions, and is organized by categories such as "Science Fiction," "Electricity and Static" and "Supernatural." *Platinum Sounds* retails at $1,395.

Circle 192 on Reader Service Card

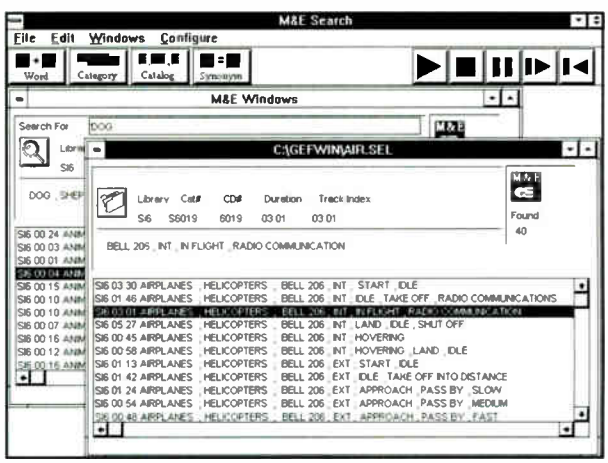
GEFEN SYSTEMS M&E WINDOWS V.2.2

At October's AES convention, Gefen Systems (Woodland Hills, CA) released Version 2.2 of its M&E Windows database software, which organizes, searches, locates and auditions production music and sound effects libraries on CD. New features in V.2.2 include Windows 95 compatibility and direct control of Pioneer's 300-CD Autochanger.

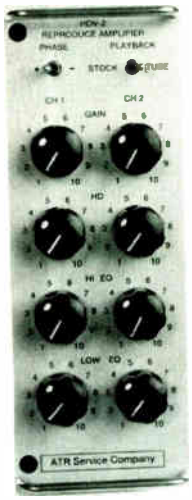
Circle 193 on Reader Service Card

JBL 4645B CINEMA SUBWOOFER

JBL (Northridge, CA) is replacing its 4645 subwoofer with the 4645B, a single 18-inch subwoofer system. The new THX-approved model delivers nearly three times the power handling (peak power rating of 3,200 watts), less power compression (reduced by 3 dB) and higher maximum SPL output (increased by 8 to 13 dB) than its predecessor. Improved performance is attributed to a new driver design that incorporates JBL's patented Super Vented Gap Cooling and a new-generation, polymer-treated cloth driver surround. An increased port area and fine-tuning extend frequency response down to 25 Hz.



NEW PRODUCTS



ATR-100 RETROFIT KIT

ATR Service Co. (San Mateo, CA) offers the HDV-2 modular playback amplifier and matching Flux Magnetics head for Ampex ATR-100 series recorders. The 2-channel, plug-in module has a front panel switch for switching between stock or vacuum tube playback circuitry. One ¼-inch and two ½-inch versions of the retrofit kit are available.

Circle 226 on Reader Service Card

DESPER PRODUCTS PRO SPATIALIZER

The Pro Spatializer from Desper Products (Woodland Hills, CA) is a multitrack, real-time processor for spatial expansion, sound movement and localization of mono and stereo inputs in 3-D space for two-speaker playback. Spatializer can be used in any point of the recording or post-production process, requires no decoding, is mono- and surround sound-compatible, and presents no multipath or broadcast problems.

Circle 228 on Reader Service Card

QL-400 STUDIO LOCATOR STAND

Music Industries Corp. (Floral Park, NY) introduces the Quik Lok QL-400, a general-purpose studio stand designed to hold small professional studio gear such as autolocators, mixers, sequencers and drum machines as large as 23.75 inches wide by 26 inches deep. Equipment may be locked into position and tilted to 90° without fear of it coming loose. Height is adjustable from 32 inches to 40 inches. The QL-400 is $169.95 with casters, $149.95 without.

Circle 230 on Reader Service Card

DRAWMER 1962

The 1962 Digital Vacuum Tube Preamplifier from Drawmer (distributed by QMI of Hopkinton, MA) combines two matched low-noise preamps and two 24-bit analog-to-digital converters for a "one-box" solution to digital recording. Features include a switchable "zero overshoot" limiter, variable high- and lowpass filters, equalization, selectable 16-, 18-, 20- and 24-bit resolution, and AES/EBU, S/PDIF and TDIF outputs. Supplied as an analog-only device for $2,699, the 1962 is upgradeable to full digital capability for less than $6,000.

Circle 227 on Reader Service Card

TECHNICS ACOUSTIC MODELING SYNTHESIS

Using Acoustic Modeling Synthesis technology, the SX-WSA1 workstation from Technics (Secaucus, NJ) combines sampling realism with the "feel" of acoustic instruments. Its new technology allows modeling of performance and expression parameters that are not represented in PCM synths. The unit has 256 presets, 128 sound combinations, a 61-note keyboard and 47,000-note sequencing. Retail is $3,396. A non-keyboard rack version (SX-WSA1R) is $2,996.

Circle 229 on Reader Service Card

NEVATON STEREO MIC

The Nevaton CMC 47 (distributed by Harris Allied, Richmond, IN) is a stereo microphone with transducers that are vertically mounted, one above the other, rotatable 90° relative to each other for a smooth transition from mono to wide stereo imaging. An LED indicates presence of phantom power, frequency response is 20 to 20k Hz, noise level (A-weighted) is 17 dB, and maximum input level is 135 dB SPL. Output is via a balanced transformer and a gold-plated XLR connector. Price is $959.

Circle 231 on Reader Service Card

OTARI DTR-8 DAT RECORDER

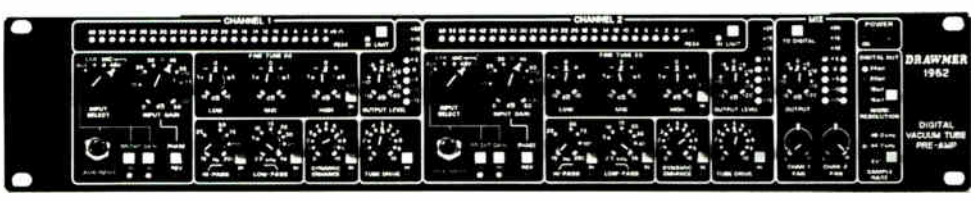
The DTR-8, a new low-cost DAT recorder from Otari Corporation (Foster City, CA) allows users to record and erase up to 60 characters at the beginning of each track and to enter subcode time information such as start ID, end ID, etc. Entered characters are displayed on the DTR-8's front panel display and can be read by other compatible machines. The DTR-8 offers selectable sample rates (48, 44.1 and 32 kHz), high-speed search at 300x play speed, balanced analog inputs/outputs on XLR connectors and AES/EBU and S/PDIF digital I/O. The rack-mountable unit includes a wireless remote. Price is $2,000.

Circle 232 on Reader Service Card

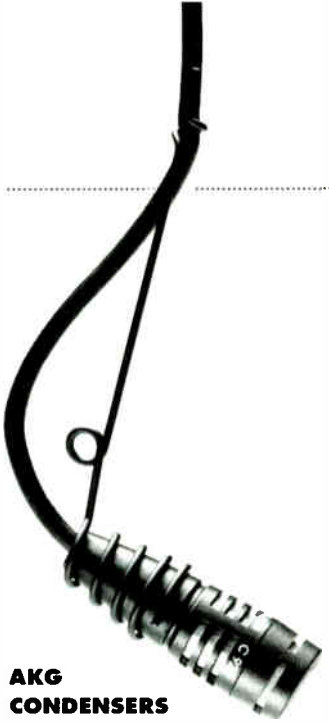
ACCUSONICS CLEAR BAFFLES

Clear-Sonic panels from Accusonics Manufacturing (Germantown, MD) are aluminum-framed, portable, clear Plexiglas acoustic panels designed for stage or studio use. Construction features include stainless steel fasteners and reinforcing steel corner brackets. Panels may be ordered in custom sizes; covers and cable cut-outs are optional.

Circle 233 on Reader Service Card



New Products



AKG CONDENSERS

Two new condenser microphones from AKG Acoustics (Northridge, CA), the C947CM and C921CM, are designed for use in hanging applications, such as choir, stage and auditorium applications. The high-sensitivity, hypercardioid C947CM offers uniform coverage from 20 to 18k Hz, with excellent off-axis rejection. The mic features low self-noise (-70 dBA) and, with an outside diameter of 0.4 inches, is almost invisible in hanging applications. The supercardioid C921CM offers a cost-effective alternative in less demanding situations. Featuring a 0.5-inch diaphragm, the C921CM has a frequency response of 60 to 20k Hz and a S/N ratio of 67 dBA. Both mics offer hanging hardware for precise aiming.

DGS DIRECT BOX

The new DGS Pro-Audio direct inject box from Deltron Components (distributed by DGS Pro-Audio, Arlington, TX) has an active balanced driver that can send unbalanced audio signals 100 meters or more. The unit features power, low-battery and overload LEDs, a six-position input attenuator, ground lift switch and battery or phantom powering.

Circle 234 on Reader Service Card

ASC ATTACK WALL

Eugene, OR-based ASC (Acoustic Sciences Corp.) offers the Attack Wall,™ a modular, portable acoustic treatment system of ASC's Studio Traps and Monitor Stands configured to create a consistent mix environment, regardless of room configuration. Also new, ASC's Sound Flag is a triangular wall panel designed to be edge-mounted on 2-foot centers around the upper perimeter of a room. Sound Flags provide a cost-effective way to reduce reverb while maintaining brightness.

Circle 235 on Reader Service Card

ACO PACIFIC PRECISION MEASUREMENT MICS

ACO Pacific (Belmont, CA) offers a range of precision measurement microphones designed to meet stringent IEC and ANSI international standards. ACO's "Alternative" family of Type 1 measurement microphones feature stainless steel bodies; 1-, ½- and ¼-inch stainless and titanium diaphragms; and flat frequency responses under free-field and pressure conditions. Models are available as phase-matched pairs, and certain models exhibit bandwidth to 120 kHz and a noise floor of 10 dBA.

Circle 236 on Reader Service Card

LEXICON PCM90 DIGITAL REVERB

The new PCM90 Digital Reverberator from Lexicon (Waltham, MA) ships with 250 all-new presets, including Concert Hall, Spatial EQ and compression algorithms, and features many programs derived from the Model 300 and 480L. A search facility allows users to quickly find programs suited for particular applications, and a front panel PC card slot allows for the storage and addition of programs and presets. Featuring two Lexichip™ II DSP ICs, the PCM90 is designed to work as a stand-alone product or in tandem with the Lexicon PCM80 multi-effects processor. Both units offer true stereo and feature 18-bit A/D converters and a 24-bit internal digital bus.

Circle 237 on Reader Service Card

STUDIO PRO ACOUSTIC TREATMENTS

A comprehensive range of acoustic absorbers, diffusers and resonators is available from Studio Pro (Huntington Beach, CA). The SP-1 and SP-2 are quarter-round wall panel absorber/diffusers; the SP-9 is an all-purpose gobo; the SP-8, SP-16 and SP-17 are bass absorbers; the SP-72 is a diffusion panel offering uniform diffusion over five octaves and is available in white or custom colors.

Circle 238 on Reader Service Card

MACKIE ULTRAMIX UNIVERSAL AUTOMATION

Mackie Designs (Woodinville, WA) is now shipping the Ultramix Universal Automation System™ for a wide range of mixers and the Macintosh computer. Comprising the Ultra-34™ VCA gain cell, Ultramix Pro™ software for Macintosh, and the UltraPilot™ Fader Pack, the automation system can handle up to 32 channels plus L/R masters, and the software is OMS-compatible. Including graphic editing, auto gating and full MIDI playback capability, the system is priced at $2,797.

Circle 239 on Reader Service Card

PEAVEY VC/L-2 TUBE COMP/LIMITER

Peavey Audio Media Research (Meridian, MI) introduces the VC/L-2™ 2-channel tube compressor/limiter. A 2U dual mono (stereo-linkable) all-tube design, the VC/L-2 is based on Peavey's IAD (Illuminating Attack/ Decay) System, which responds to source dynamics to produce a warm, vintage sound. Supplied with transformer balanced inputs and outputs, the VC/L-2 features a frequency response of 20 to 25k Hz, S/N of 82 dB, attack time of 10 microseconds and gain reduction of up to 40 dB (± 2dB).

Circle 240 on Reader Service Card

NEW PRODUCTS

AUDIOCONTROL IASYS
AudioControl Industrial (Mountlake Terrace, WA) introduces the Iasys™ Speaker Performance Manager, an easy-to-use acoustic analyzer that assists users in quickly picking crossover frequencies, adjusting limiters, setting crossover levels, optimizing delays and verifying polarity. Self-contained and portable, the lunch box-sized Iasys automatically collects and analyzes speaker system data, via the included test microphone. Front panel push buttons and a shuttle wheel allow the operator to select from a variety of preprogrammed test routines. Results are displayed on a 64x128 dot-matrix, gas plasma screen.
Circle 241 on Reader Service Card

MACROMEDIA SOUNDEDIT 16 VERSION 2
Version 2 of SoundEdit 16 from Macromedia (San Francisco, CA) adds batch-processing capabilities for automatic conversion between Macintosh 16-bit, 44kHz AIFF files to Windows 8-bit, 22kHz .WAV files. A downsampling feature allows creation of 8-bit, 11kHz and 8-bit, 22kHz files, to increase storage space and bandwidth; IMA 4:1 compression is also supported. Import and export options include a CD import facility and support for Sun .AU file formats. Also supplied are more than 300 MB of clip sounds from the EARSHOT™ sound collection, for adding Foley effects to multimedia and audio productions. Suggested price for SoundEdit 16 Version 2 is $399; upgrades are $129.
Circle 242 on Reader Service Card

SCHOEPS CMBI
A new battery-powered CMBI microphone electronics/powering module from Schoeps (distributed by Posthorn Recordings, NYC) provides portable power for all of Schoeps' Colette series microphone capsules. Eighteen different Colette capsules can be attached to the CMBI, and battery-powered performance is comparable to Schoeps' standard CMC Series. The unit includes a 15dB pad and LED warning light to signal the end of the battery life (up to 80 hours). A range of unbalanced output adapter cables connect the microphone to DAT, VTR or wireless mic transmitter inputs.
Circle 243 on Reader Service Card

HOT OFF THE SHELF

Synclavier's S/Link 2.0 ($249) can change formats of selected audio clips from AIFF to .WAV and UA files and can convert the sampling rate from 44.1/16-bit to 22/8-bit and 11.5/8-bit. Call 603/448-8887...Noble U.S.A.'s 12mm and 14mm size **XV Series rotary pots** are available in 16 styles and feature low noise and smooth operation. Call 708/364-6038...**Sound Werx Applied Technology's** buy-out production music library uses digital surround sound and proprietary Advanced Spatial Placement (ASP) processes. Call 717/533-4780...The Music Bakery has added four new categories **of high-quality buy-out production music**, each available on CD for a one-time, royalty-free $58. Call for free CD demo: 800/229-0313...**FSR Inc.'s FL-800 floor box** protects microphone and data communications connections under raised floors. The 4-inch-deep, 7.75-inch-square box offers easy access via a disappearing finger-pull. Call 201/785-4347...The **SST Spectral Shaping Tool for the Macintosh** from AnTares Systems (formerly Jupiter Systems) allows Digidesign users to tailor monitor systems to emulate almost any listening environment. It analyzes the speakers/listening room and corrects imperfections or matches the system to previously stored and sample environments. Call 800/446-2356...*Semiconductor Essentials for Hobbyists, Technicians and Engineers*, by Stephen Kamichik, is a 128-page beginner's guide. Call 800/428-7267...Digidesign's **MasterList CD Version** 1.2 CD-DA writing software ($995), for creating Red Book-standard CD or 8mm DDP tape masters, supports the Power Macintosh 7100 and 8100 and Mac System 7.5 and supports Kodak, Philips, JVC, Ricoh, Plasmon and Sony CD recorders. Call 415/688-0600...Markertek Video Supply offers its 1996 **300-plus page catalog of video and audio supplies**, featuring thousands of products at competitive prices. Call 800/522-2025. ■

Go To Your Room

2.0

ctually, with the powerful reverb algorithms in the lesis Q2™, you can go to any room you want.

2 has the power to take your music to shimmering alls, bright chambers, dark caverns, or anywhere our creativity leads you. There's 300 carefully-designed everbs, delays, EQ, pitch and special effects that rovide the high-end professional processing you need ithout breaking the bank.

ut the best reason to use a Q2 is the incredible flexibility gives you to create your own space. Because the place here the music sounds the best – the room to be in – night be the room you call your own.

«(( ))»

I love the Q2. I'm using it in the show every night."
— Robert Scovill, 3 Time TEC Award Winner (Sound Reinforcement Engineer)

I love that Q2. We're using the hell out of it."
— Ray Benson (Asleep At The Wheel), Multiple Grammy® Winner

Q2 is the presetter's fantasy and the tweaker's dream."
— Francis Buckley, Top Independent Dance/Pop Engineer

- Stereo or Independent Dual-Channel Operation
- 100 Preset And 200 User-Editable Programs
- Octal Processing™—Up to Eight Effects At Once, In Any Order
- 24-Bit Internal Processing; 18-Bit D/A Converters; 48kHz Sampling Rate
- +4dBu Balanced and -10dBV Unbalanced Operation
- ADAT® Optical Digital I/O
- Custom LCD Graphic User Interface with Virtual Patch Cables
- **NEW!** Version 2.0 Software Now Features Up To 5 Seconds Of Sampling, Plus Overdrive, Surround Encoding, Triggered Pan with Doppler and More!

ALESIS

lesis Corporation 3630 Holdrege Avenue Los Angeles CA 90016 310-841-2272 alecorp@alesis1.usa.com

USE READER SERVICE CARD FOR MORE INFO

SSL SL 9000 J SERIES

ANALOG PRODUCTION CONSOLE WITH DISKTRACK DIGITAL RECORDER/EDITOR

The SSL 9000 J Series console in Masterfonics, Nashville

Improving upon success is always difficult. Typically, a manufacturer's marketing department has polled current customers and come up with a wish list of advanced features and functions that, these users have told them, are necessary for next-generation systems. Meanwhile, the R&D department has been following the latest trends in circuit design and implementation and is prepared to extend the envelope in state-of-the-art technologies. In the case of Solid State Logic's new SL 9000 J Series, there were additional parameters to fold into the equation.

First, SSL's G Plus range of analog consoles, including the SL 4000, 6000 and 8000 systems, has constantly evolved during the past 20 years, and is probably the world's most familiar control surface; I would hazard that more engineers know how to use an SSL console and its Studio Computer automation than just about anything else in studioland. And in the digital domain, SSL has shown a considerable amount of talent in designing consoles and editing systems.

With such a duality of success, where does that leave SSL's analog design team? The release of the SL 9000, with its all-new J Series computer system, poses some obvious questions. Are there advances still to be made in analog circuit designs that make a new model viable? Can the SL 9000 push the envelope beyond G Plus and offer an alternative to some of the current all-digital designs? These and a myriad other questions were on my mind while I spent time with the latest analog offering from this leading manufacturer.

In terms of sonic quality, the SL 9000 does indeed out perform its predecessors; this is, without doubt, one of the quietest analog boards I have ever come across. (The enhanced noise and THD specs can be traced, I was informed, to the elimination of electrolytic capacitors from the signal path; the resultant DC-coupling is said to enhance sonic performance in these and other critical areas.)

In terms of user features, SSL has also added many useful functions to its current design. But the *pièce de resistance* is the new J Series automation computer which, as I discovered, has been designed from the ground up to provide a significant number of new features, including a sophisticated user interface, with full-color graphics, that bears more than a passing resemblance to SSL's digital products interface, plus a new version of Ultimation moving-fader automation and Total Recall. Optionally available is SSL's DiskTrack hard-disk digital audio recorder/editor.

PRIMARY SYSTEM OVERVIEW

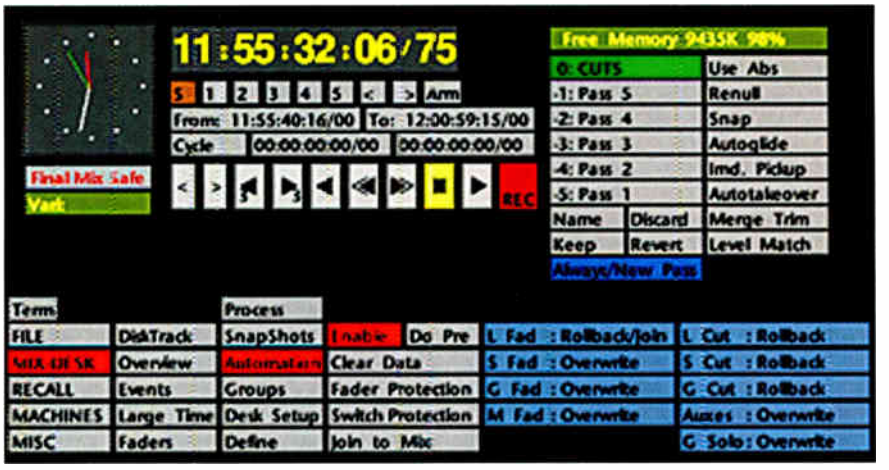
The new SL 9000 J Series draws upon and extends many of the features from SSL's existing recording and production consoles, while retaining a familiar control surface. A casual glance reveals little difference between the color schemes and general ergonomics of a previous SSL model and the new 9000. But the similarities are only on the panel layout; the powerful J Series computer enables many more fader and switch functions to be automated and recalled with subframe accuracy. As expected, the SL 9000 incorporates an in-line signal path. The mainframe comprises a central section and buckets of eight input strips; the frame can accommodate a maximum of 120 channel modules.

Master computer-controlled status switching quickly reconfigures the console for particular tasks, including tracking, overdubs and remix; the signal routing can be overridden locally, however, to provide enhanced flexibility. In order to work with multiple multitrack and mastering machines, the SL 9000 features 48 multitrack buses, four stereo buses, a main LCRS bus (which is also available as an optional LCR panning configuration), plus eight aux buses that can be configured as six mono effects sends and a stereo

BY MEL LAMBERT

cue/foldback send. In addition to serving as subgroups, the four stereo bus outputs can be used as additional record sends, dedicated surround/center outputs for mix-to-picture sessions or as extra effects sends.

The J Series also provides additional flexibility with regard to machine-control functionality. In a basic setup, the J Series computer can serve as a master, capable of controlling up to four slaves via direct 9-pin serial control ports; no additional synchronizer modules are required. Slaves can be offset to the master and placed off/online as necessary. The J Series computer features a G Plus-compatible parallel interface and provides facilities for generating both linear timecode and MIDI Time Code for interfacing with MIDI-based samplers and sequencers.



A great deal of information is shown on the full-color graphics display, which more closely resembles SSL's digital products than previous analog automation.

INPUT/OUTPUT MODULE REFINEMENTS

The console retains SSL's familiar Record, Replay and Mix status switching, except that in Record or Replay mode, the large fader is designated as the monitor path and the small fader the channel path. (This logical change makes excellent sense; on the SL 4000/6000/8000 Series, VCA to Monitors or Fader Reverse also has to be implemented to achieve the same signal flow.) To reverse faders in Record or Replay modes, you simply select Small Fader to Mon. I soon realized that the J Series designers have thought through the process whereby new tracks become eclipsed by prerecorded material during overdubs, and then replay from the multitrack; the master mode switching and local overrides provide a great deal of flexibility in sourcing signals to feed to various output buses.

When mixing, it is not unusual to run out of sends to effects units—particularly during a busy mix. But what of the now-redundant mix buses? Can they be pressed into service? The SL 9000 has an ingenious FX reassign system—or "EFX"—whereby a couple of dedicated buttons per module enable any two mono effects or the stereo cue/foldback sends on individual channels to be disconnected from their respective buses and routed instead to any of the stereo or multitrack buses, thereby providing up to 64 (48, plus four stereo, plus the existing eight) discrete effects-send mixes.

The J Series also extends the number of automated functions. In addition to the familiar large-fader level and cuts control provided on the G Plus, the new console offers automation of the following channel functions: small fader level, small fader cut, EQ in/out, insert in/out and individual aux on/off switches. Now, many more switch assignments can be changed on a timecode cue and incorporated into the automation data.

Also available are connection and direct control of SSL digital products via an Ethernet network, including DiskTrack, VisionTrack, SCSINet (remote MO drives), KeyPad, programmable patchbays, and so on. VisionTrack provides up to 60 or 120 minutes of random-access video storage, according to system specification. KeyPad connects to the SL 9000 via a single cable and features 20 programmable keys that can be used to mimic buttons on the console's front panel. PatchBay is an automated 24x8 router that can be used with analog audio, AES/EBU digital audio or machine control lines.

The SL 9000's input/output module bears a strong resemblance to the SL 4000G, but with some neat enhancements, including a Multitrack Bus trim located close to the assignment buttons (instead of being adjacent to the Group/Tape switches near the bottom of the module). The J Series Dynamics section is based on G Series circuits, with the addition of a peak-detect option on the compressor, and a hold control for the Gate. As with the G Series, the Dynamics section can be keyed from the Monitor path, or from the insert return. The mic preamplifier has been redesigned to provide improved noise performance, and offers a Hi-Z option for direct connection to keyboards and similar devices.

The SL 9000 offers 4-band parametric equalization, with variable Q on the mid bands and shelving/bell on the high and low bands. The normal EQ curves are based on the G Series equalizer; with constant Q on the mid bands, the bandwidth increases as the gain is increased. But, instead of the LMF and HMF range shift switches found on G Series, the SL 9000 offers LF and HF bell switches. In addition, an "E" switch selects an alternative set of EQ characteristics, based on SSL's 242 E Series card. Now the mid-bands offer a constant bandwidth—Q increases as gain is increased, while the HF band features a shallower slope than Normal mode. As with G Series, the EQ section can be switched to the monitor path and/or the filters placed in the channel input.

NEW AND IMPROVED AUTOMATION FUNCTIONS

The J Series computer features an entirely new automation system based on processing capabilities derived from SSL's family of digital products. Data is stored on an internal hard disk; for full compatibility with current systems, information such as cues, track lists, Total Recall setups and mix data can be moved to MO or floppy disks for transfer between studios. Information stored on G Plus Bernoulli data cartridges or floppies can also be imported, and mix data saved with G Plus software may be converted to play back with the J Series computer.

The console's user interface includes a color monitor/pen-and-tablet combination familiar to ScreenSound, Scenaria and OmniMix users. Names and numbers/timecodes may be entered using the pen via onscreen keypads, a dedicated numeric keypad or, more easily, via a dedicated keyboard located in a drawer under the tablet. Session data is stored in Project Files; studios can have a default Project from which subsequent working projects can be built. All automation data, track lists,

events (cue) lists, etc. are held in memory until saved via this menu to hard disk. Each time any element of a Project File is saved, it generates a new version of that element and does not overwrite the version previously saved to disk.

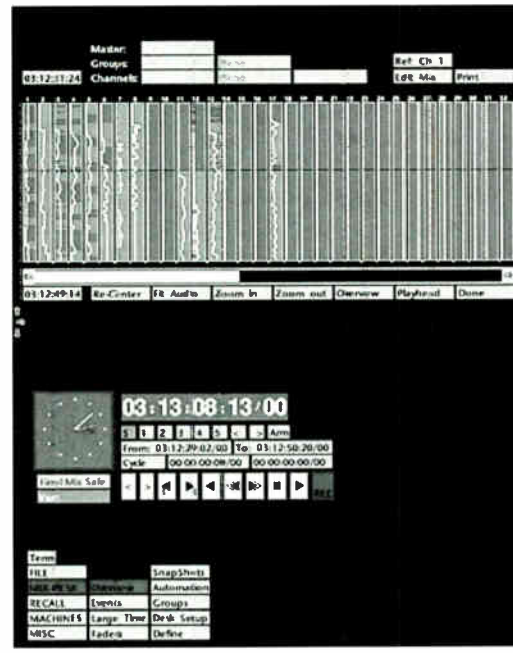
Space limitations prevent me from providing more than a brief overview of the J Series automation functions. My overall observation is that many G Plus users may be intimidated by the enhanced features and functions available from the new system. There is no denying that, once you appreciate what the new computer automation offers, it becomes indispensable. At first sight, however, it can be overwhelming. Mastering the J Series requires care and patience; it would be nice if SSL offered a "Starter Page" that would allow a G Plus user to begin a session in a more familiar environment, and then move on to full automation later in the project.

The large faders and central group faders are automated with SSL's moving-fader Ultimation. Normally, fader motors are activated and audio passes through the fader, except when a specific automation mode dictates that audio should pass via the channel VCA. You can also turn off the motors, if they're not required; in this case, audio only passes via channel VCAs when a fader is grouped, or the automation is activated. Automation of small faders is provided by separate VCAs, which are bypassed unless small-fader automation is activated; this is very useful during tracking to eliminate VCAs from the signal path.

Unlike the G Plus, large fader cuts, along with all the other automated on/off and in/out functions, are treated separately to the fader level information, and may be selected independently to any one of the mix modes. A useful new feature, Match and Play, allows mix data written for automated switches to be edited, by effectively dropping in/out of Write mode on existing mix information. Individual Match and Play buttons for each channel are located above the large fader solo and cut buttons; separate Match and Play buttons are provided above the Group faders.

FULL-COLOR GRAPHICS DISPLAY

The color monitor can be set up to display a variety of graphics information. The main part consists of 32 vertical windows representing Channels 1-32; as with SSL's digital systems, the display can be scrolled to the left to reveal Channels 33-120. Channel windows are used to display cues, automation data and an audio trace. Capture Clips is a neat feature that allows the J Series computer to capture audio clip information from console channels, via the opening and closing of gates in the corresponding dynamics sections. Once captured, an onscreen representation of the audio is very useful while editing automation data.



Graphical display of fader and mute information

A red line across the center of the display represents the current ("play head") position; the system can be moved to any timecode point within the window by simply stabbing with pen at the required position, or by dragging the red line to a new locate point. Cues are represented by horizontal black lines across all the channel windows, and can be located in a similar way. A Zoom facility provides a more detailed view of the display.

In addition—this is one of the display's most useful functions—mix data levels for faders and automated objects can be shown as colored overlay traces. Excursions to the right indicate an increase in fader level or, in the case of switches, the on condition. The display is very intuitive and easy to follow. Once automation data has been written for faders and objects, it can be edited on an additional large-scale display of a single channel; once again, audio can be displayed as a waveform during the editing process.

Other features are available for the SL 9000 equipped with DiskTrack, which provides a maximum of 128 audio tracks of disk storage; the console provides access to up to 96 concurrent record/playback tracks. Now, in addition to showing audio envelopes, the color VDU also provides a full range of screen-driven editing tools; material can be moved against timecode, truncated, crossfaded and subjected to a wide range of sonic indignities. DiskTrack also serves as a routing system for additional hard disk recording/playback and analog or digital I/O systems.

All I can really say abut DiskTrack is that you have to try it to fully appreciate what zero rewind time does for the speed of a session! In addition, material on individual tracks can be nudged forward and backward in microsecond increments, to improve timing or for special effects. In block-move mode, data can be relocated anywhere within a project, to repeat a chorus for example, or to provide the ultimate in comping vocals. Up to 50 takes can be recorded to any one track. All drop-ins/outs are crossfaded to avoid clicks. Crossfades are stored on disk at the time of creation; it is not necessary to re-create them in real time whenever the track is replayed.

And if that wasn't enough, in Record mode DiskTrack is always armed and ready for action, which means that it has been capturing the input signal for a second prior to and after dropping into/out of Record mode. Now late punches, or rude timing anomalies, can be corrected simply by extending the start or end points. It's a great system!

FLEXIBLE AUTOMATION MODES

Automated mixing is enabled by simply pressing an Auto button in the center section. Starting status in a new mix for large and small faders is Absolute. When replaying previous mixes, the faders will start in Replay status. As mixing proceeds, the Update Fader status may be selected to Absolute, Trim or Replay mode on all or selected channels. In Trim mode, the fader effectively becomes a gain control for any previously made moves.

Eight different mix modes are available, including Static, Overwrite, Rollback, Rollback/Join, Clip Fill, Clip End, Cycle Fill and Cycle End. Regardless of the mix mode selected, there are two possible write status modes for faders: Absolute and Trim. When the system is

replaying previously written data, all faders are in Replay status. In Overwrite mode, as soon as the system enters play, dynamic fader moves and switch changes will be written to the current mix pass, up to the point of rollback. Levels and switch settings at the point of rollback will be written to midnight, effectively overwriting any previous mix data. Static mode functions like an online recall; as soon as the system is rolled back, the current levels and switch settings are recorded for that mix pass, from the start of the mix to midnight. Rollback mode allows a basic mix pass to be updated. New information is only written to the point at which the system is rewound; any previously recorded mix data will be replayed from the rollback point on. Rollback/Join is, in essence, halfway between Overwrite and Rollback, and automatically drops the faders that were active at the roll-back point into that mode the next time you play through the data. Ingenious.

Clip Fill and Clip End are designed for use with captured clips or audio recorded to DiskTrack. Clip Fill allows switches and faders to be adjusted freely without being written to the mix; when the system is rewound, settings at that point will be written for the entire length of the chosen audio clip. Clip End enables dynamic moves to be written to the end of the clip; at the point of rollback, the last settings will be written to the end of the chosen audio clip. All very useful, and a creative addition for the J Series system. (Cycle Fill and End operate on a similar principle to Fill and End but within the duration of the current cycle window.)

In addition to the basic mix modes and their Absolute or Trim write status options, the J Series also provides a number of associated automation facilities, including Renull (to force a level jump at the point a fader is switched from Replay to Trim); Snap (a fader stays in the Write mode while touching the fader, after which it resumes replaying the reference mix); Autoglide (to move the fader back to the null point after writing, and adjustable from 1 frame to 10 seconds); Autotakeover (which provides an indication of the direction an active update fader must be moved in order to return it to the null position, at which point the fader drops back into Replay mode); Immediate Pickup (a useful function for the Large Faders when the motors are turned off, and which simulates the touch sensitivity of moving faders; it also drops the small, VCA-based faders into Write mode); Merge Trim (a very powerful function that adds absolute mix data to trimmed mix data, thus allowing further trims to be applied to previously trimmed moves); and Level Match (which provides an indication of where a fader should be positioned to match the written mix information).

Eight Control Group faders are provided in the center of the console, as well as 32 software groups from the J Series computer. Software groups can be used in or out of an automated mix, and allow free grouping of any fader to any other fader (large or small). Each slave fader in a group can be one of six types: Slave Fader and Cut, Slave Fader Only, Slave Cut Only, Slave Cut Inverted, Slave Status Only.

An unlimited number of Switch Groups can be set up to group together the console's non-latching objects on the console, including effects sends on/off, stereo cue on/off, insert in/out, EQ in/out, large/small fader cuts, group fader cuts and solos. Two types of groups are provided: Master/Slave or All-Master. Whereas a Master/Slave group has a single designated master fader or switch, an All-Master group enables any fader/switch within the group to control all others in that group.

The J Series computer also has a new way of handling mix passes. Each time the system is rolled back after making update moves, J Series generates a new "Mix Pass." Each pass is automatically provided with an incrementing number, and time-stamped. A new mix pass is only created if the mix information has been updated—just rolling back and listening to the mix a number of times does not create a new mix pass. The Mix Pass list is continually updated, and stores six complete mixes in memory which, in turn, allows for six levels of undo. As the Mix Pass list is updated, earlier mix passes are deleted to make room for new ones. Important mixes can be saved periodically to the internal hard drive, and a single mix retained for an indefinite period in the Mix Pass list by means of a Keep function.

In addition to dynamic automation, the J Series computer also provides a total of 40 consolewide snapshots of all automated functions. The computer also stores a Pre Enable snapshot each time the mix system is enabled; this setting can be used to restore the board if the

mix system is enabled with an older mix that destroys the current console settings.

And finally, SSL's familiar Total Recall records the position of all the switches and rotary controls in the console's channel modules, as well as the positions of controls within the center section—a first with the J Series. Reset accuracy is a quoted ±0.25 dB. Total Recall setups are saved on a project basis, in a similar manner to mixes, via the Project Manager Setup Menu, which also provides access to the Total Recall Setup List.

ENHANCED ANALOG CIRCUITRY MEETS SOPHISTICATED DIGITAL CONTROL

There is little doubt that SSL has dramatically stretched the technology envelope with the new SL 9000 J Series analog recording console. Offering a number of dramatic advances over existing G Plus systems, as well as the ability to incorporate full-function digital audio and video playback, the 9000 is destined to become a central attraction in a growing number of "Ultra" class rooms around the world. But it's not a console for the faint-hearted; it needs to be thoroughly mastered before the dramatically enhanced computer-controlled functions can be fully realized.

Once you become familiar with the J Series system and the revolutionary creative tools it offers in the studio, you may wonder how you ever managed without it. It's a tool that rapidly earns your respect. In terms of sonic performance, the 9000 is without equal in the analog domain. In terms of digital control, its only serious rivals are the all-digital designs from a small handful of companies. I predict that this will be the last large-format, all-analog design that SSL brings to market. I doubt if they could top what they have achieved with the SL 9000 J Series.

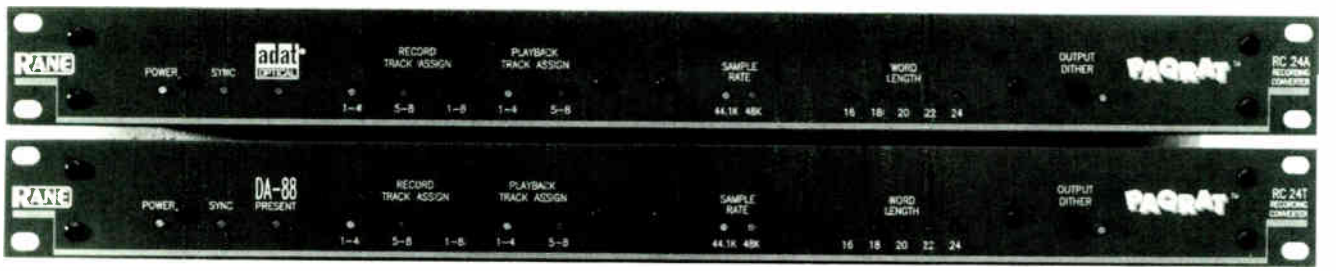
• • •

My sincere thanks to Rick Stevens and the crew at Record Plant, Hollywood, for providing me with access to the 80-input SL 9000 J Series with DiskTrack in the SSL3 Studio Suite, and to Allen Sides of Ocean Way, Hollywood, for his extremely useful input regarding the day-to-day operation of his new 80-input SL 9000 in Record One's Studio B. ■

Formerly editor of Recording Engineer-Producer *magazine, Mel Lambert currently heads up Media&Marketing, a consulting service for pro audio firms and facilities.*

RANE PAQRAT

20-BIT RECORDING CONVERTER



Rane's single-rackspace Paqrat is available in ADAT- and DA-88-compatible versions.

Twenty-bit recording will change your life. Some five years ago, I had the opportunity to try Yamaha's DMR8 20-bit digital multitrack. It was my first experience on a 20-bit system, and since that time, I've never listened to 16-bit in quite the same way. The 20-bit playbacks in the control room were glorious: thick, rich and full of detail. When those same mixes were released on CD, the magic was gone. I knew it then. I wanted more. I had become a 20-bit-recording junkie.

Of course, 20-bit gear is available, but typically at a price that well exceeds most budgets, except for those facilities catering to the glitterati of the recording world. The rest of us would just have to wait for a technology breakthrough. Well, wait no more. The Paqrat series from Rane is a collection of outboard converters that transform your ADAT or DA-88 modular digital multitrack into a 20- or 24-bit, 2-track mastering deck. Two models are available: The RC24A ($999) has optical ports for interfacing with ADAT-compatible machines; the RC24T ($899) has TDIF ports for connecting to the Tascam DA-88.

Housed in a single-rackspace chassis, Paqrat takes an AES/EBU or S/PDIF digital input from your digital mixer or A/D converter and stores the signal onto four tracks of an MDM. During recording, MDM tracks 1 and 3 store the top 16 bits of the signal (most significant bits), while tracks 2 and 4 store the least significant bits (LSBs). Conversely, tracks could be recorded on MDM tracks 5 through 8, or if you're really concerned about your masters, you can switch the Paqrat to simultaneously record on tracks 1-4 and 5-8 for redundancy in the event of dropouts. On playback, the digital output of the MDM connects to the Paqrat converter and is output in AES/EBU digital format on an XLR connector. Alternatively, the AES/EBU output can be switched to provide a 16-bit dithered signal for convenience in making standard DAT copies, transferring audio into 16-bit workstations for editing, etc.

As a way of reducing the cost of the unit, Rane uses an outboard power supply, but at least it's an in-line transformer rather than one of those obnoxious wall warts that seem to take up half of a Waber strip. After a few simple connections, Paqrat is ready to run. Recording audio requires little more than assigning the tracks (1-4, 5-8 or both) on the Paqrat and hitting record on your MDM. Playback is just as simple, and anyone who can operate a cassette deck can handle Paqrat operations. One minor difference is that the even-numbered meters on your MDM will display a continuous -20dB reference signal, to indicate that the LSBs are present, so you should make any level adjustments based on the MDM's odd-numbered meters.

Although not mentioned in the manual, the Paqrat can be used as a stand-alone 20- or 24-bit input/dithered 16-bit output converter by looping the MDM digital output directly to the MDM digital input and pressing the dithered output switch. Such a function could come in handy when offloading tracks from a 20/24-bit workstation and making standard DAT copies.

In session, the Paqrat functioned flawlessly, delivering true 20-bit performance, with all the clarity, depth and punch that you'd expect from high-resolution recording. The additional dynamic range provided by high-bit-rate recording is impressive, but what you'll really notice is the utter disappearance of the noise floor, along with a tenfold increase in low-level detail such as instrument decays and reverb tails. After working in 16-bit for so long, one almost forgets what recording realism is all about, and Paqrat delivers so much for so little money. Isn't that the way things are supposed to be?

Rane Corporation, 10872 47th Avenue West, Mukilteo, WA 98275; 206/355-6000; fax 206/347-7757. ■

BY GEORGE PETERSEN

Vintage Circa 1995

PVM™ T9000 CONDENSER TUBE MICROPHONE

The new Peavey PVM™ T9000 tube microphone features a very special, self-polarized condenser capsule coupled with a vacuum-tube preamplifier to provide all of the mellow warmth for which tube microphones are revered.

With smooth, extended-range frequency response and a very uniform cardioid directional pattern, the PVM T9000 is ideally suited for studio vocals and a host of critical applications.

This microphone will easily handle SPLs of up to 137 dB and includes a 10 dB attenuator and 80-Hz low-cut filter switches. The unique shock suspension incorporates a finned heat-sink to help dissipate tube filament heat!

Get all of the vintage sound, state-of-the-art functionality and classic styling from a company dedicated to quality and performance in professional sound productions. Get the Peavey PVM™ T9000.

PEAVEY®

Audio Media Research™

The *MONITOR Magazine* is a publication filled with the latest information musicians want to know. To receive 4 issues for only $5 (price good in U.S.A. only) send check or money order to: Monitor Magazine, **Peavey Electronics**, 711 A Street, Meridian, MS 39301 • (601) 483-5365 • Fax: 486-1278 • ©1994

SYMETRIX MODEL 620 A/D CONVERTER

It's a 20-bit world, and you'd better get used to it. No, you don't have to throw away your DAT decks and other 16-bit gear; however, incorporating some 20-bit technology into your production tool kit can give you a definite edge on the competition. And you may still have some money left in your bank account at the end of the month. Intrigued? Read on.

The Symetrix Model 620 is a professional 20-bit analog-to-digital converter, using true 20-bit, delta-sigma conversion technology. Equipped with a capacitor-free, direct-coupled analog signal path and the same high-performance Crystal Semiconductor A/D chips found in more expensive outboard converters, the 620 would be a great buy at its $995 retail, but it adds other features that make it one of the year's best bargains in audio. Beyond its perfunctory A/D functions (which it performs quite well), the 620 offers a linear 20-bit output, dithered or noise-shaped 16-bit and 8-bit outputs, 44.1-to-22.05kHz downsampling conversion, S/PDIF-to-AES/EBU (and vice versa) format conversion, digital black generator, internal 117/230VAC operation power supply and 23-step LED headroom metering (active from digital or analog inputs)—all housed in a single-rackspace chassis.

Operations are straightforward. The front panel has a switch for analog or digital input selection, and in the analog mode, a user can choose from a fixed +4dBu input reference level or variable pots with a 15dB control range. A four-position switch sets the output sample rate: 48/44.1/32/22.05 kHz; when fed from a digital source, the unit automatically locks to the input sample rate, except when downsampling from 44.1 to 22.05 kHz for multimedia manipulations. The output word-size control sets the output for bit resolution and type of signal—20-bit, 16-bit dithered, 16-bit noise-shaped and 8-bit (dithered or noise-shaped). A mute control switches the 620's output from normal operation to digital silence (all zeroes). An internal microprocessor "remembers" settings and restores them on power-up, and the status of all controls is indicated by LEDs. Additionally, the digital input LED acts as a "signal present" indicator and will blink to warn the user if the input is disconnected or a loss of input clock occurs.

The rear panel has the balanced (pin 2 hot) analog inputs on XLR and TRS ¼-inch connectors, along with the AES/EBU and coaxial S/PDIF (IEC 958) I/O connectors. Most A/D converters don't have digital inputs, and in the 620, these are provided for digital-domain conversions of 20-bit signals to other formats, or 44.1/22.05kHz downsampling and/or bit reduction. I had no problems interfacing to the XLR AES/EBU ports. Unfortunately, the S/PDIF jacks are recessed slightly into the chassis; therefore, it is nearly impossible to use RCA plugs with thick outer housings (as used on many of the high-quality digital interconnect cables on the market) with the 620.

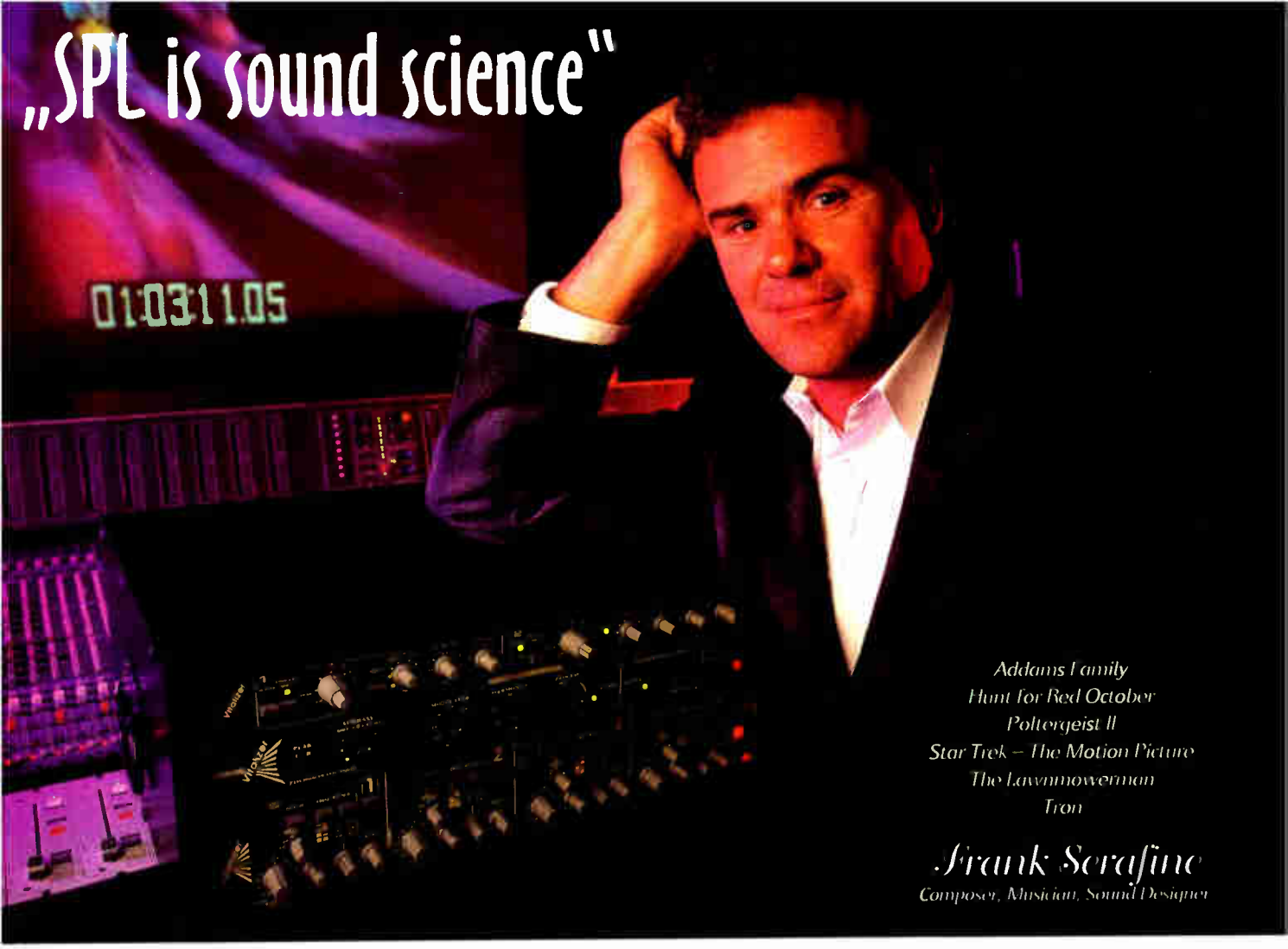
The digital inputs are among the 620's most interesting features. Most users buy an ADC to convert analog signals to digital; the 620's digital inputs open a new world of possibilities by allowing digital-domain manipulation of input signals, whether bit-reduction noise shaping or converting to 22.05 kHz. And in such cases, the 620 really shines. The quality of the audio is equal to the very best software-based solutions, and the 620's real-time processing of such signals allows you to experiment with your own EQ and compression gear in the higher-bit realm, while optimizing the final signal for lower-bit playback.

In bit-reduction operations, the 620 also provides a choice of dithered or noise-shaped outputs. Both are highly effective in minimizing the effects of 20-to-16-bit (or 16-to-8-bit) truncations. However, the method you choose depends on what happens to the signal later in the chain. If you are loading 20-bit signals into a 16-bit workstation and plan to use DSP, EQ or other signal manipulation—essentially anything other than editing—then dither is best.

—CONTINUED ON PAGE 207

BY GEORGE PETERSEN

„SPL is sound science"



Addams Family
Hunt for Red October
Poltergeist II
Star Trek – The Motion Picture
The Lawnmowerman
Tron

Frank Serafine
Composer, Musician, Sound Designer

STEREO VITALIZER® — from $ 799.--

CLASSIC VITALIZER® — from $ 999.--

OPTIMIZER — $ 1,659.--

EQ MAGIX — $ 1,659.--

the above are suggested retail prices

International sales consultancy: **ICM GmbH**
✆ +49 (93 42) 2 18 64; Fax +49 (93 42) 2 25 44

"Excellent for pre-dubbing production dialogue and ADR for motion pictures and television, the OPTIMIZER *and* VITALIZER® *prove to be great processors from the front end of our digital workstations all the way through to our final mixed printmasters.*

SPL's VITALIZER® *technology is true audio science. The* CLASSIC VITALIZER® *and the* STEREO VITALIZER® *are psycho-acoustic magic boxes. They contain boss frequencies, enhance mid and high range frequencies, stretch surround sound and widen stereo imaging.*

The OPTIMIZER *provides our studios with creative frequency equalization enhancement as well as noise control and elimination."*
— FRANK SERAFINE

New Product: The new EQ MAGIX *includes the technology of* VITALIZER *and* OPTIMIZER *in an outboard EQ unit. It combines these with a high performance microphone preamplifier and a dual channel output stage. The* EQ MAGIX *comes in a professional RF-proof chassis with a stunning metalwork finish.*

SOUND PERFORMANCE LABORATORY

USE READER SERVICE CARD FOR MORE INFO

distributed in the US and the U.K. by: **beyerdynamic**
US: ✆ (800) 293 4463, Fax (516) 293 3288, UK: ✆ (273) 479 411, Fax (273) 471 825

Very, very, very, very,
very, very, very, very,
very, very, very, very,
very, very, very, very,
very, very, very, very,
very, very predictable.

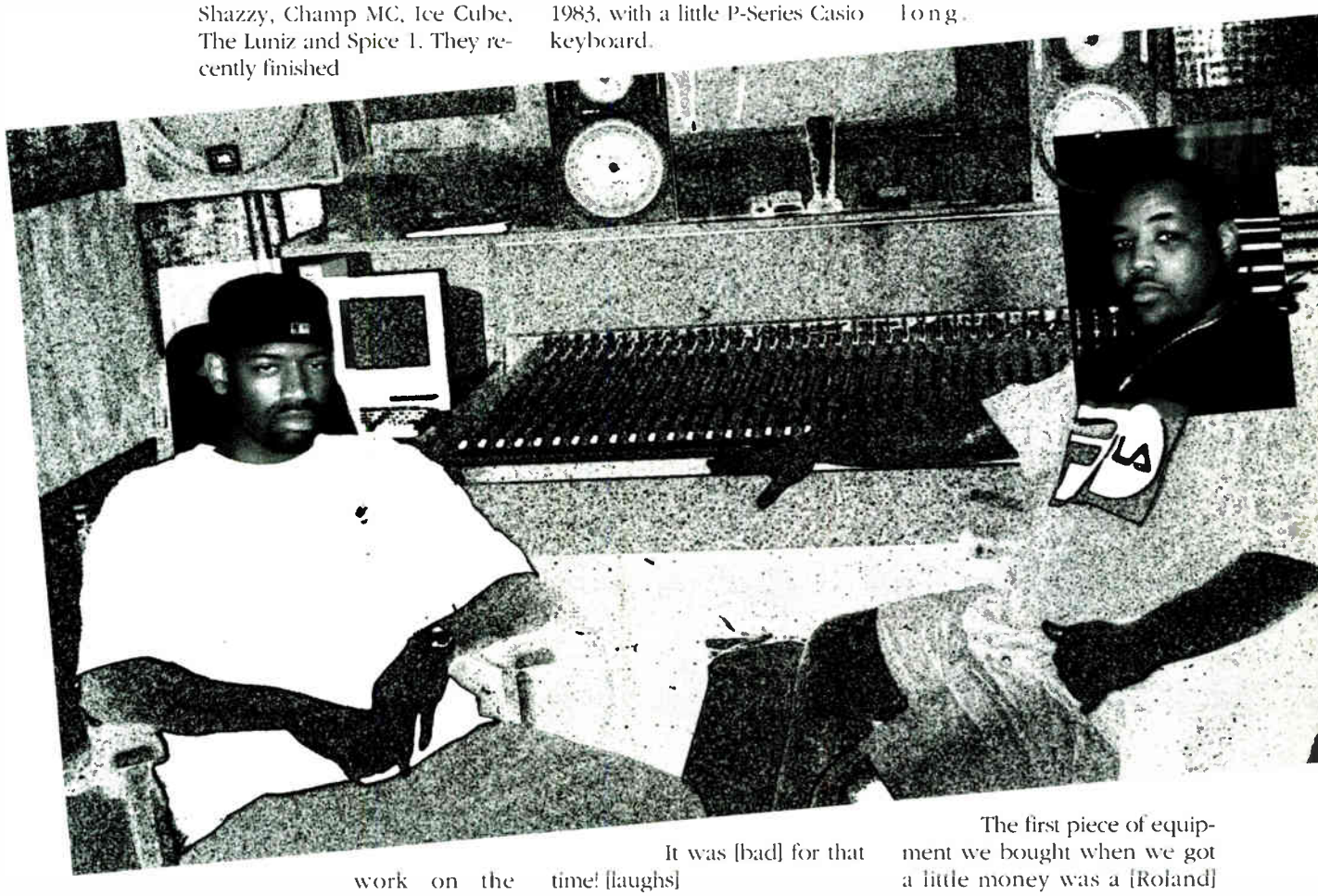
3M™986 Audio Mastering Tape delivers consistent, true sound reproduction. Listen for yourself. You'll be convinced that no other +6 dB operating level tape can match this performance. If you want more, try 3M 996, the industry standard high-output mastering tape. Call 1-800-752-0732.

3M *Reliability*

CMT & E-A-Ski

RAP TO CREATE, CREATE TO RAP

Bay Area funkblasters E-A-Ski and CMT, both from Oakland, own and operate the Infrared Music Group. Since 1983, they've been producing hits for artists such as Digital Underground, KAM, Naughty By Nature, Das EFX, Shazzy, Champ MC, Ice Cube, The Luniz and Spice 1. They recently finished work on the new Ice-T album *Ice-T IV: Return of the Real*. Influenced by Curtis Mayfield, George Clinton, and groups like the Dramatics, they cut their teeth on '70s-style R&B and funk, and they've combined these influences, and others, to create a unique sound. Their music has been described as having a dramatic-action quality to it, perfect for movie soundtracks or bumping you in your car. *Mix* caught up with these young guns in September as they worked on some new music for an upcoming E-A-Ski solo release.



CMT (left) and E-A-Ski

How did you get started in the business?

E-A-Ski: We started back in 1983, with a little P-Series Casio keyboard.

Didn't the lack of equipment hamper things?

E-A-Ski: Yeah. It's so funny, we didn't have equipment for so long.

It was [bad] for that time! [laughs]

What were you using as your recorder?

CMT: We had a cassette 4-track. At one time, we were recording and mixing with an open-reel 2-track. In 1988, we started going to professional studios and improving our [production] skills. In 1990, we did our first 24-track production.

Where did you guys record?

E-A-Ski: We went to Joe Capers' studio. He taught us a lot about recording and enhancing our mix.

The first piece of equipment we bought when we got a little money was a [Roland] TR-606, and it was broken when we got it! I had studied electronics, so I was able to fix it. We used that with the Casio keyboard. We still have the 606! [laughs]

What was your first professional multitrack machine?

E-A-Ski: It was a Tascam 238 Syncaset 8-track cassette recorder. The mixer we used was a 10-channel Ramsa board that we previously used with the

BY CHRISTOPHER PATTON

cassette 4-track. I believe we were the first [rap] production group to actually purchase a 238.

It was after purchasing the 238 that you got your big break on a major project, wasn't it?

E-A-Ski: Yes. It started with Spice 1, "Triggas Got No Heart." No one believes me when I tell them we recorded the song on the 238 for the *Menace II Society* soundtrack.

Do you believe that being self-taught engineer/producers enabled you to create with more feeling and not to solely rely on the technology?

E-A-Ski: We've learned that it's not about the equipment but how it's used. They're just tools to help you make your music. We listened, asked questions and tried different things. Techniques such as [ping-ponging] were learned by trial and error. We eventually learned how to do it without too much [degeneration]. I believe by our learning in this fashion, we were better trained to understand the production techniques used today.

What equipment is needed for a rap producer to get started today?

E-A-Ski: To be truthful, all you need to get started is a good sequencer, a drum machine and a sampler, or a combination of all three, like the [Roland] MPC-3000. For a while, all we had was an [Ensoniq] EPS and an [E-mu] SP-1200. We did a lot of stuff with those. We got the MPC-3000 about a year after the SP-1200, upgrading from the MPC-60. We like the stereo capabilities and sequencing [functions].

Why the ADATs?

E-A-Ski: We like to go against the grain. There were producers who were telling us to go with the 2-inch [analog] machines. These same guys were saying back when we started that ½-inch, 8-track was it. We ignored them and purchased a 238. While they were spending all their money on reels, we were buying cassette tapes, saving money and making hits! It was so funny.

Isn't that "fat" analog sound what rappers want to hear?

E-A-Ski: The consumer doesn't know the damn difference! They only care if it sounds good. At the end of the day, all that matters is whether you've created a monster and the consumers know it.

Do you think your skills at being able to visualize this art form gave you the respect of such noted rappers as Ice Cube and Ice-T, both currently involved in successful movie careers?

E-A-Ski: I would like to think so. I'm told there are very few producers tailoring their productions to individual artists in the manner we do.

What other producers do you feel tailor their production to the artist?

E-A-Ski: Babyface. He's great at what he does. He's the bomb! It's just not my opinion; look at all the Number One records he's produced!

What are rap artists looking for when they come to you for production?

E-A-Ski: Diversity. People don't just think of us as just West Coast [rap] producers. We've produced tracks for Das EFX, Naughty By Nature, Champ MC and other East Coast rap groups. People are also looking for new ideas. We're not complacent to stay with the same techniques on every track we produce. We're always trying new things.

When an artist comes in with pre-production, how do you work your style to it?

E-A-Ski: We don't like to work with any other production. It hampers us. The Luniz was that rare exception where we used pre-production. That was more or less a favor to the record company. They wanted to know if we could do it. We showed them we could get funky with it, and the song shipped Gold. We told them originally not to send us anything except their vocals and SMPTE! [laughs] That's how we like to work. By working this way, we can [compose] the bass lines, drum [beats] and everything else to complement the artist. Ninety-nine percent of the time, when an artist brings something to us, we'll have something archived that'll work better. We haven't run across any artist

I'M TRYING TO CREATE A 3-D EFFECT. I WANT THE KICK TO HIT YOU IN YOUR BACK. SOME PEOPLE TRY TO CREATE THE EFFECT BY BUILDING TENSION ON THE BREAK OR SOME SORT OF THING. I DON'T BOTHER WITH THAT. —E-A-SKI

where we had to [compose] anything from scratch yet.

How do you put your grooves together?

CMT: I might start off with recording some sample drum sounds like snares and kicks. I might even sample some loops, though we'll usually place them low in the mix. After that, I'll come in and [compose] some bass lines. Ski and I might get together before then, and he'll come up with some ideas, or vice versa. We'll take our time until we find what's right.

E-A-Ski: We mostly start with the drums, to get a good groove. Getting good drum sounds and establishing a solid beat are things we're good at. Then we'll work on the bass line. If we're bobbing our heads to it, then it's on! We know when the beat is popping and when it's fat. It's hard to explain. We also create our own sounds. I'll program some bass patches using the [Roland] JD-800 or some other synth. We'll use a combination of different patches from other keyboards to create a unique sound. We're constantly experimenting; that's basically how we work. We also do a lot of collaborating. A project isn't done until we both say it's done.

Your kick drums usually seem to be mixed with the same volume as the main rap. How does this work for you?

E-A-Ski: It's all about impact! The kick drum helps create the mood; it sets the pace. With it, I'm trying to create a 3-D effect. I want the kick to hit you in your back. Some people try to create the effect by building tension on the break or some sort of thing. I don't bother with that. People will usually listen to the first eight bars of a song, and if it's not slamming, they'll move on to the next.

How can a producer keep productions fresh and spontaneous?

E-A-Ski: There is nothing wrong with having preconceived production notes before coming to the studio. Sometimes, however, the idea might not work out the way you planned. You have to be flexible. You'll have to tweak the idea to make it work. Don't be afraid of taking chances!

It seems you took chances with "Blast if I Have To," from the Friday soundtrack. It's so different from other raps you've recorded.

E-A-Ski: That's a good example. The way we originally wanted to [record] the song wasn't turning out right. We later wound up at The Plant in Sausalito [Calif.], where we tried some things we normally wouldn't try in structuring a song, and it turned out great. Your

readers should understand that the less restrictions you have, the more creative you'll be. When the movie soundtrack to *Friday* was coming up, I had no idea how the movie was going to be structured. I was just told to come up with a song.

You're using the Neumann U47 condenser mic for your vocals. Isn't the Shure SM57 dynamic the mic of choice for most rappers?

E-A-Ski: Man, when we started using the Neumann, it took our sound to a whole other level. When we listen to our old shit, we ask ourselves how we could have ever used anything other than the Neumann.

What else are you using to bring out your vocals?

E-A-Ski: We also use the Manley tube compressor and the Behringer mic preamp.

We spoke a bit about your background, training, equipment and production philosophy. Let's talk about the artists themselves. What makes a good rapper?

E-A-Ski: A rapper has to be an actor. He has to be able to play a role. This is necessary because people need to feel what you're saying. Some rappers are good at drawing you into a story. Artists such as Scarface or Spice 1 are good examples. With Spice 1, we were able to listen to his lyrics and conceptualize the production from his story line. It's not unlike the relationship a movie director has with the writer when filming a motion picture. Most of today's rap producers aren't doing things on this level.

Should a hardcore rapper produce edited versions of his or her raps for radio airplay?

E-A-Ski: Yes. People believe that using profanity is the only way a rapper can communicate. It's about diversity. A rapper is an artist, a creative person. They should be able to reach people on a street level and a radio-friendly level. It's not a compromise. It's showing their artistry by reaching more people. Rap today is a business. The more people you can reach, the more successful you'll be. Besides, you'll have to do a video, and you can't do an explicit video!

Yes, but isn't doing a "clean version" of a street rap a sellout?

E-A-Ski: It can feel that way, because sometimes you'll do a clean version of a successful street rap, and you still won't get radio airplay! The only reason why I'll do a clean version today is not so much for radio but for video. Radio can be too fickle. Hardcore rappers are the ones that need to worry about selling out. They'll have to change their [entire] style to cross over for radio airplay. I can understand their unwillingness to do this, because that's the way they may talk on the streets. They should not only rap to their hardcore base, they should also try to communicate their message to those not on the streets. I don't believe in being one-dimensional. Besides, you can't be hardcore 24-7. You're not hardcore when you go to church. Think about how you talk to your "niggas" on the street and your grandmother. You're not hardcore with your grandmother! The creative thing to do is to make the same song for two different groups of people. Make a song for the streets and make the same song for your grandmother. You may have to humble yourself to reach those who might not understand the game.

There's so much bad publicity given to rappers today. What do you feel a rapper has to do to avoid the negative limelight?

E-A-Ski: When some rappers get a little money or credibility, their first thing is to buy the expensive cars and jewelry. The thing to do is to put back into the studio and do what you do best. It's about longevity. Longevity for an artist in the recording industry is getting shorter. Paying the bills and concentrating on the future should be their [primary] concern. These people don't understand recoupment and other tie-ins this industry has.

Let's now talk about the business of rap music. Do you recommend that an artist starting out put demos together and sell them for much-needed capital to get started?

E-A-Ski: Oh, yes! This industry sucks! The record companies have no faith in your material unless it's already doing something. People need to understand that mainstream record companies know very little about black music. The labels that are going to take a chance on you are the labels with their ear to the streets. When we put together our demo, we pressed up about 5,000 units and created a buzz—not a big one, mind you, but something nevertheless. Word of mouth is the best way to blow yourself up!

Didn't you guys initially go front door to the record companies first?

E-A-Ski: We went front door first, we really did. It didn't work! [Everybody laughs.]

How do you advise the novice producer to be successful in rap?

E-A-Ski: I encourage producers to be creative. Today, there seems to be a lot of production cloning. Besides Dr. Dre and us, there aren't many I can say that are taking this rap game seriously in terms of [creative] production. I know there's pressure in the industry, and people will tell you there's no room for failure, but you can't be afraid of falling on your face. Once you've learned your craft, you'll then need to network. Try to go to some [music] conferences like the Gavin, BRE and others. Another way to be make it is to produce some tracks and submit them to the artists you feel would like what you're doing.

When we were starting out, I went to my parents, CMT went to his, and we borrowed money to produce our own tapes. This was so we could get a buzz happening by ourselves. Independent music is what's happening now. The [major labels] aren't listening to new music. You must also be willing to hustle. This is also a mental game. You have to be able to brainstorm all these ideas to get where you want to go. These are just ghetto strategies. [laughs] Last but not least, get yourself a lawyer, don't get caught up in the talk-talk. Before you do anything, get as much information as possible. The guys at [Mix Bookshelf] have a book called *All You Need to Know About the Music Business* [by Donald Passman]. People should check that out. Get the knowledge! ■

A RAPPER SHOULD BE ABLE TO REACH PEOPLE ON A STREET LEVEL AND A RADIO-FRIENDLY LEVEL. IT'S NOT A COMPROMISE. IT'S SHOWING THEIR ARTISTRY BY REACHING MORE PEOPLE. — *E-A-SKI*

"With the unmistakable voice of Julie Andrews in the new hit musical Victor/Victoria, the speaker system had to be exceptional. I am very pleased with my selection of the EV DeltaMax™ speaker systems."

Sound Design by: Peter Fitzgerald
Sound System Fabrication:
Sound Associates, Inc.

DeltaMax™

EV

Electro-Voice®

Electro-Voice, Inc. a MARK IV company
600 Cecil St. Buchanan, MI 49107
800/234-6831 616/695-6831 In Canada: 613/382-2141

SOUNDCHECK

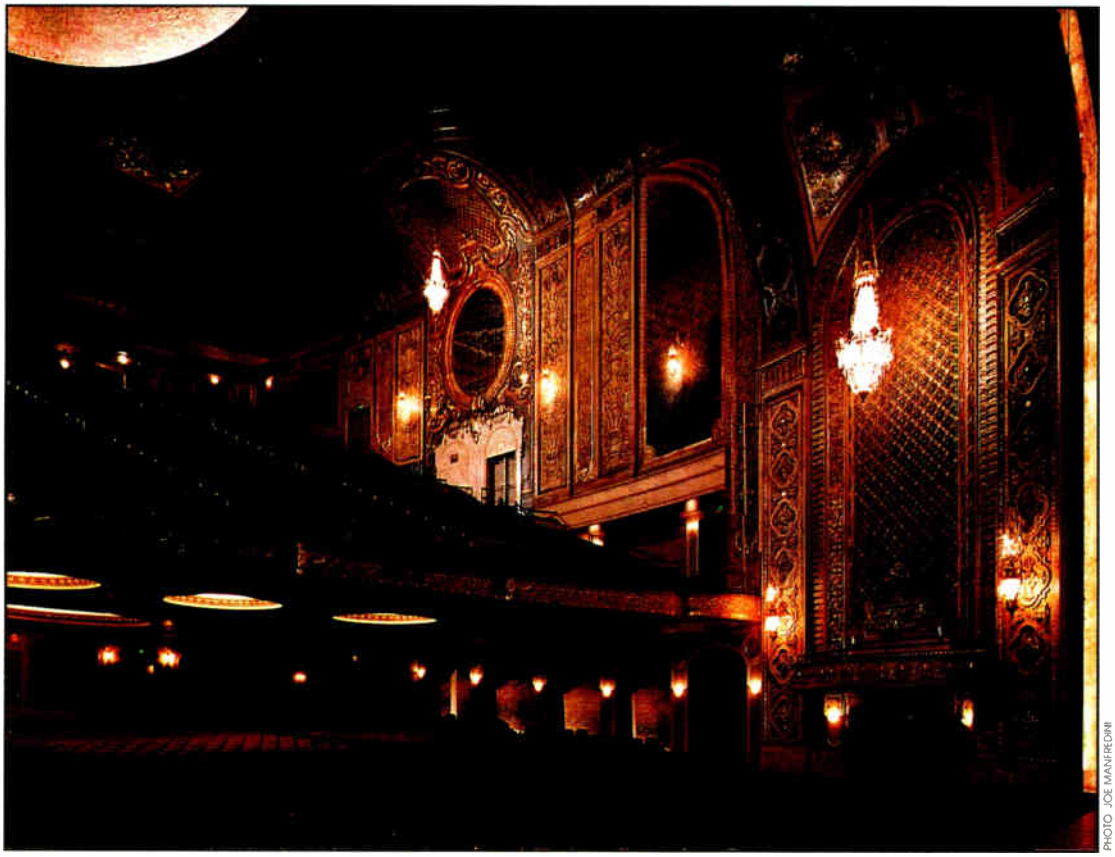


PHOTO: JOE MANFREDINI

SEATTLE'S RENOVATED PARAMOUNT THEATRE

The Paramount Theatre in Seattle reopened last year, after completion of the first phase of a restoration and renovation program. More than 200 historic light fixtures, constructed of solid brass and crystal and valued at $3.7 million, were cleaned and rewired, and a 408-dimmer lighting system was installed. Another major improvement was the installation of a touring-style sound installation that allows performers to play one-offs without carrying production.

The auditorium's new sound system was supplied by Clair Brothers Audio and installed by Puget Sound & Light. Working with theater manager David Allen, Clair's Vish Wadi has designed a system that international touring artists can use with confidence. (Allen was Robert Cray's tour manager, and Wadi has toured most recently with Sting and R.E.M.)

A 60-channel snake with SCV five-way active splitters makes the Paramount a first-choice venue for live remotes. In addition to splits at FOH and monitor mix positions, there are three additional split output locations. One is right in the new loading dock area. Another is in a small room offstage. Each location has its own 100-amp, 3-phase electrical disconnect, as does the monitor position. A third split position is in the video control room, next to the spotlight booth above the balcony. All sound power is on its own isolated service.

For 'industrial' events with simpler audio requirements, a separate, 20-pair (unsplit) snake goes from FOH to the stage manager's area backstage. Along with a dozen distributed tielines, there are twelve drive lines that go to the amp room from the FOH mix position, ten of which are dedicated stereo pairs for mains, center cluster, front fills, under-balcony and subwoofers.

The FOH mix position is at the rear of the orchestra level, to the right of the center aisle, in a dedicated box area where line connections terminate. The console is a Yamaha PM4000-48 in a custom three-piece case with a removable nose. There are four channels of TC Electronic 1128 programmable ⅓-octave equalizers, each with a 6032R moving-fader remote-control head. Also included are three Yamaha YDG-2030 stereo programmable delays with ⅓-octave EQ.

—CONTINUED ON PAGE 172

BY MARK FRINK

BRUCE SPRINGSTEEN
Solo and Acoustic

There's nothing like a Steinbeck novel to at once deflate and inspire. His books portray so basically, and so inseparably, the rough reality of the human condition and the magnificence of the untiring human spirit. This concept is clearly what Bruce Springsteen had in mind when he titled his current release *The Ghost of Tom Joad*, after a character in Steinbeck's Depression-era novel about migrant workers, *The Grapes of Wrath*. The album is full of story-songs that work like snapshots of Americana. Characters wander lonely, commit crimes, repeat their mistakes, lose in love and, somehow, never lose their dignity, if only because the narrator's voice is so strong, and the guitar-based acoustic music is so beautiful, tender and powerful.

It's not surprising content from Springsteen. He has always written working-class folk songs—"Born in the U.S.A.," for instance. But *The Ghost of Tom Joad*, like his neglected masterpiece *Nebraska*, is really a musical departure. Springsteen fans have come to expect raucous, rocking, dynamic productions, especially live. That's why everyone associated with the artist's solo, acoustic tour is calling it "a different animal." The live production is even more spare and concentrated than the album.

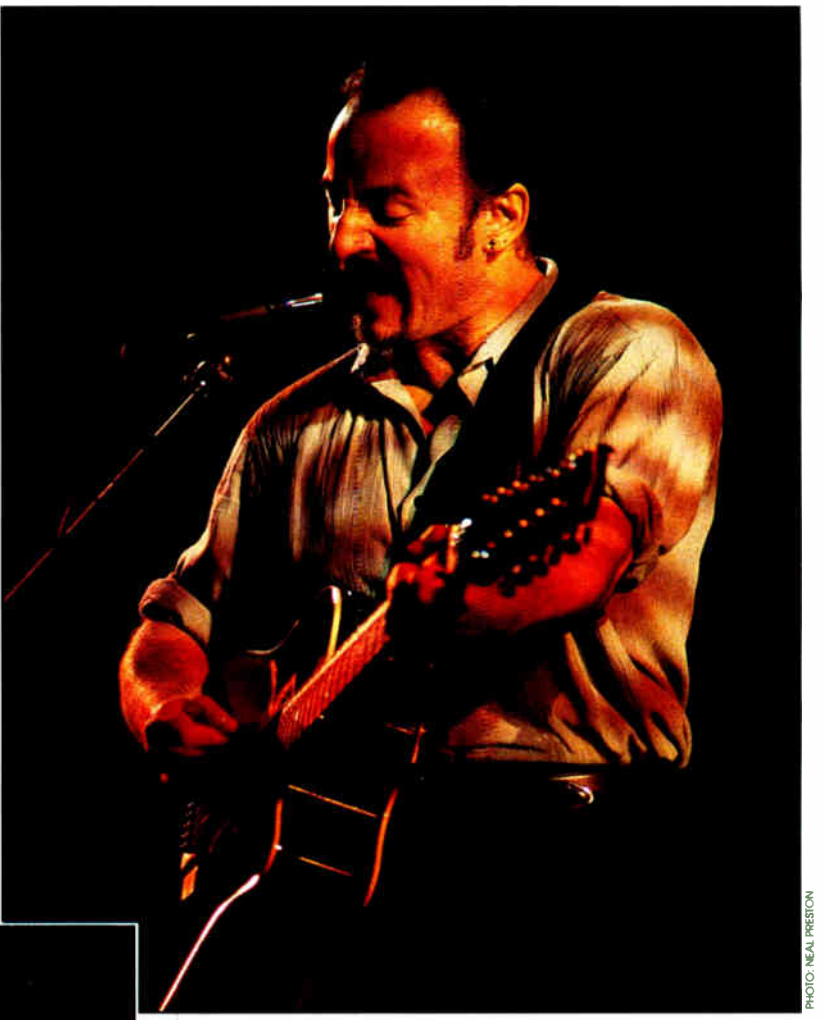


PHOTO: NEAL PRESTON

Bruce Springsteen FOH engineer John Kerns

"If you look at the surface, you wouldn't think there'd be a whole lot to do," says front-of-house engineer John Kerns, "because it's just him and his acoustic guitars, but the show's very dynamic. I believe we're out here with 16 different acoustics, and they all have their distinct tones, and there are certain things that he wants the audience to hear. And obviously the vocal is the thing that we're looking at here, and it ranges literally from a whisper to a scream." Kerns has been working for the tour's sound reinforcement company, Audio Analysts, since 1987 and mixed FOH on Springsteen's full-blown '92 tour (Dec. '92 *Mix*), which hit sheds across the country. This tour visited seven U.S. cities, playing a couple of nights apiece in 3,000- to 8,000-seat theaters.

Kerns mikes Springsteen's vocal with an Audix OM3, the same mic they used for the '92 tour. "He's comfortable with it," explains Kerns, "but

BY BARBARA SCHULTZ

—CONTINUED ON PAGE 175

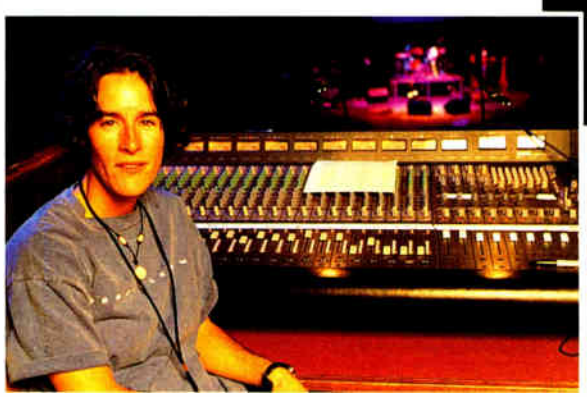
FERRON

"Phantom Center" II

One of the best-sounding tours to make the rounds last fall was by singer/songwriter Ferron, who was out promoting her Earthbeat/Warner Bros. release, *Phantom Center*. Ferron hit the road last October with an ensemble of musicians, each of whom had played with her, live and/or on albums, at various stages of her 20-year career.

Shelley Jennings plays a Parker Fly guitar, which can be switched from acoustic to electric and back with a switch on the guitar body. Chris Nordquist is the somewhat subtle, extremely cool and jazzy drummer, and Darrell Havers rocks the group with his keys. Don Benedixon, the bass player, was bassist and co-producer (with Ferron) on her *Driver* album. And what is perhaps the band's defining sound comes from Jami Sieber's electric cello (which looks to the audience like a stringed two-by-four), which Ferron describes offstage as "the sound of my soaring heart," but jokes onstage that it is "awfully skinny, and she really should feed it." The group is mixed by Myrna Johnston, who owns sound reinforcement company Myrna Johnston Audio in Boston and has been Ferron's engineer of choice for many years.

PHOTOS: STEVE JENNINGS



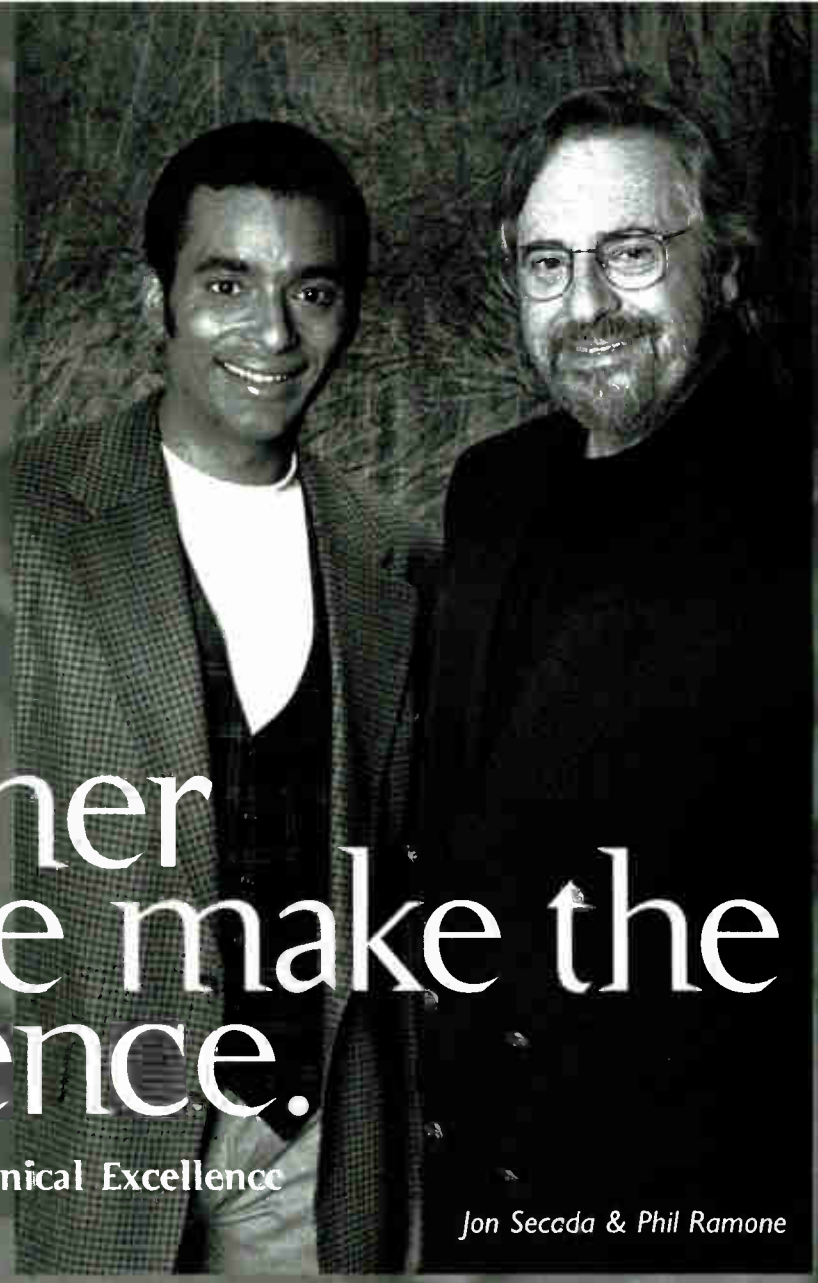
Ferron FOH engineer Myrna Johnston

The ironic thing about the Phantom Center tour is that it is promoting a new album that is not really new. *Phantom Center* was actually released for the first time in 1990, on the Chameleon label—the singer/songwriter's first foray into big-label representation. But part way through the first *Phantom Center* tour, Chameleon went broke. "A whole bunch of us were just left choking on our own tears," Ferron recalls, "and my heart was kind of broken. I felt I should have known."

It was a terrible blow to an artist who felt she had taken a big risk, who had always kept things pretty small and maintained total personal control over her material. After a brief recovery period, Ferron returned to making records and touring, playing to core audiences mainly consisting of women who admire her poetic and passionate songs.

"Then I made the *Driver* album, which I thought I was making for about 3,000 people who love my work," she says, "and that's enough to keep a life together, but it was like when all the planets line up or something. The next thing you know, it's getting really nice reviews from real newspapers and real reviewers. And it was a nice feeling to think, 'Okay, I'm in it for love. I'm in it for autonomy, and *on top of it*, the real world noticed my work.'" But the plot thickened. Warner Bros.' Earthbeat Records label became interested in Ferron's work and broached the subject of a licensing deal. "They were looking at *Phantom Center*, which was a few years old by that point, but that interested me because I'd always wanted the song 'Harmless Love' to just be needed by people. Just let me know that this is needed, and then I know that it's the earth that I want to be on. And it turned out that they wanted to re-release the album, and

BY BARBARA SCHULTZ



Together we make the difference.

Jon Secada & Phil Ramone

1 Recognize Artistic and Technical Excellence

GRAMMY® AWARDS
GRAMMY TECHNICAL AWARDS
GRAMMY HALL OF FAME

2 Advance Our Professional Community

GRAMMY PROFESSIONAL FORUMS
INDUSTRY NETWORKING
GRAMMY PUBLICATIONS

3 Protect Our Creative Environment

ADVOCACY FOR ARTISTS RIGHTS
MUSIC ARCHIVING AND PRESERVATION
COALITION FOR MUSIC EDUCATION
GRAMMY IN THE SCHOOLS®
MUSICARES®

Join Us.

The Recording Academy®

Join over 10,000 of your peers. You can make a difference. Call 1-800-555-3822.

they want to put a song on the radio called 'Harmless Love,' and I thought, 'Well, I cannot believe this. Is this how long a prayer takes?'"

So with the help of Warner Bros. and Joni Mitchell engineer Dan Marnien, *Phantom Center* was remixed and re-released, with the gentle ballad "Harmless Love" out as the first single. The song's refrain has a similar sentiment (though a less ironic tone) to Nick Lowe's "(What's So Funny About) Peace Love and Understanding": why not just show love and tenderness? "What's the matter with harmless love?" And it's this honest and emotional mood, mixed with a lot of humor, that permeates Ferron's live performance. At the show *Mix* caught, Ferron took the stage at San Francisco's Palace of Fine Arts theater alone first, and instead of starting off singing, told the audience about how she'd seen a lot of them on the way in, as she was out sitting in her car. The audience got a big kick out of the fact that while she was out there, someone asked for her parking space: "Are you leaving?" Then the music began, and she was joined by the musicians one by one. Between songs, throughout the evening, Ferron chatted comfortably with the audience, sharing personal stories that were sometimes touching and sometimes hilarious. The music itself is far-ranging, from basic folk ballads to Cajun-sounding rockers to smooth jazz or bright Latin beats, always with Ferron's strong lyrics distinct and central.

"Part of what's unique about Ferron is that she really understands how critical good sound is," says Johnston. "She would take an engineer with her when she was going out solo, even though it cut in, of course, to her salary. She really gets it. And since she's such a brilliant poet, the audience is really there to hear her lyrics. So it's critical to keep her voice out in front and yet have the presence of the band right there. And she is real concerned with volume. She loves the band sound, but she also wants the audience to reach a bit so that they're not bombarded by the sound of the more rock-y pieces. But immersion in the song is so important; there's a real emotional and spiritual content to her work."

In San Francisco, Johnston mixed on a Yamaha PM1800 console provided by Brisbane, Calif.'s Sound On Stage. The company supplied all of the gear for the show, with the exception of the theater's installed Meyer speaker system (six UPA1As flown center, and two MTs per side). Johnston used Shure SM58 mics on all of the vocals; all of the bandmembers sing background except for Chris Nordquist. A Beyer M88 was used on the kick drum, Sennheiser MD-421s on the rack and floor tom, and Shure SM81s were used on the overhead and hi-hat. All of the electronic instruments are DI. Sound On Stage also provided effects—a Yamaha SPX900 and a Roland SE3000 delay—and sent along monitor engineer Adrienne Felicioni, who mixed on a Gamble SC-32 console. The company's custom Power Physics KB2 bi-amped monitors were used by the band. Johnston is frank about the challenges posed by traveling without her own sound system but says the S.F. gig went very well. "That was a good monitor engineer, a good sound system, helpful people, high level of quality and competence," she says. "That's all you can ask for."

And Ferron, who makes a point of introducing Johnston to the audience as the "musician you can't see," can't say enough good things about what Johnston brings to the tour: "I always feel good when Myrna's around. Even if there's a huge buzz in the room, I always know that this is going to be taken care of in a minute. Shelley, the guitar player, is an electrician, too, and I can remember one time we were at a show, and they didn't have the right electricity to run our gear, and I'm making coffee in the back and thinking, 'Well, when are we going to start?' And I come out and go: 'Where's Shelley? where's Myrna?' They're rewiring the stage. It'll only take a second. I've seen Myrna walk into someone's hall, and the person says, 'This buzz has always been here.' But she just has the respect and the authority she needs, and she'll very gently go about it, and you know that buzz is not there when I get onstage." ■

—FROM PAGE 168, PARAMOUNT THEATRE

The main left and right speaker arrays consist of 24 three-way R3T speakers, color-matched to the paint on the proscenium arch. The R3Ts hang in two columns of six, on each side of the stage. The top four rows cover the balcony, and the bottom two rows cover the orchestra level. The R3T, a trapezoidal version of the R4 enclosure, contains an 18, a 12 and a 2-inch compression driver, all JBL components. The entire FOH system is powered by 38 Carver-manufactured CBA amplifiers, for a total output of about 50,000 watts.

The 18-inch woofers are powered in pairs by CBA 1000M mono-block amps, running at 4 ohms, supplying 625 watts to each driver. Each pair of 12s is powered by one side of a CBA 1000S 2-channel amp, with the other side powering pairs of 2-inch horns.

The center cluster consists of four Clair P-4 three-way Piston enclosures, flown above the proscenium opening and painted to match. Each P-4 enclosure contains two 12s for lows, a third for midrange and a 2-inch driver, powered similarly to the main arrays. Each of the six UB 2000 under-balcony enclosures is loaded with two 8-inch speakers and a dome tweeter. The two at the extreme sides are circuited on separate amp channels so they can be turned down or shut off to reduce reflections from side walls. There are also eight Clair ML-18 single-18 subwoofers.

The world-class touring monitor system has sixteen channels of TC Electronic 1128 equalizers, controlled by 6032R motorized remotes. There are 14 Clair 12AM floor monitors and sixteen bi-amped mixes of CBA 1000Q amps that have built-in processing for the 12AM wedges. There are also four Clair R2DP speakers—trapezoidal versions of 12AMs—used either onstage or for auditorium front fills. For sidefill, there are four three-way R4s, and two more ML-18 subwoofers to beef up two-way mixes for drum fills. The 40-channel Ramsa WRS840 monitor console is in a custom, three-piece road case, with a removable nose, allowing the engineer to comfortably lean on the arm rest.

There are 44 2-channel ClearCom intercom locations. Each intercom circuit is fused and has LED indicators at the 20x8 mechanical matrix. The outputs of the matrix are wired to two 8-channel programmable master stations for total redundancy. Program feeds are routed through a TOA L-1102 Stereo Leveler and a White 4926 distribution amplifier, and then are sent to 70-volt speakers distributed in four zones throughout the building. Feeds are also sent to an infrared system for the hearing-impaired. Inputs for paging, program and background music are mixed and routed by four TOA 900 Series powered mixers. The system for the hearing-impaired has four Sennheiser SZI 1219 high-power IR emitters.

Touring veterans remember the cramped quarters backstage and in the dressing rooms. The renovations have added 60 feet to the back of the building. Stage width has increased from 76 feet to 94 feet, and depth has increased

from 29 to 48 feet. New dressing rooms include multiple chorus and lead rooms, as well as star accommodations with Jacuzzi and fireplace. Part of the backstage expansion included the installation of a covered loading dock that is capable of handling two tractor-trailers simultaneously. Those familiar with the venue will remember the old, steep ramp system used to load in from the sidewalk. A new 10x24-foot hydraulic freight elevator with a ten-ton capacity now travels down to the stage level, making load-in (almost) a joy for touring rock shows and Broadway productions alike. ■

NEWSFLASHES

On the heels of last October's AES show in New York, **Peavey Electronics** Corp. (Meridian, MS) conducted a two-day MediaMatrix seminar, held at the company's 80,000-square-foot Peavey Center educational facility. The seminar included an introduction of the product and discussions about associated hardware, software, design concepts and applications...**Garwood Communications** (Newtown, PA) is supplying the current David Bowie tour (profiled in last month's *Mix*) with its Radio Station in-ear monitoring system. The company's ITE6000 instruments are worn by each member of the band. Monitor mixer Mike Prowda says that the use of in-ears rather than stage monitors can mean the artists "lose a little of that crowd feel, but you gain detail and articulation." To strike a balance, Bowie wears just one...**Sound Image** (San Marcos, CA) purchased Yamaha PM3500 and PM3500M mixers to supplement the system it has been supplying to Jimmy Buffett's "Domino College" tour. Sound Image also provided the tour with its proprietary monitor system, a 40-channel Ramsa console for monitors, AKG mics, QSC amps and an array of effects from TC Electronic, Yamaha, Sony, Amek and dbx...**Clair Bros.** (Lititz, PA) provided equipment for Gloria Estefan's performance in Cuba last fall. Front-of-house mixing and stage design were by engineer Mark Dowdle...**Sundown Sound** (Portland, OR) purchased a Ramsa SX-1 console. The company's current roster of sound reinforcement clients includes George Benson, Robert Cray, Stephen Stills and the Oregon Symphony Orchestra. ■

—FROM PAGE 169, BRUCE SPRINGSTEEN

this time we're using a hard-wired version, since he's not moving around the same way. I go through a Summit limiter to try to warm it up a little bit. I wouldn't say it's a thin mic, but it has a huge presence to it, and it's a little bit sibilant at times, but it's really 'intelligent' everywhere, even when he's whispering or when he's off the mic a bit." Kerns also uses a bit of AMS reverb and TC Electronic delay, but otherwise this tour is pretty effects-free. Springsteen's many acoustic guitars are fed completely dry through Countryman DI boxes.

A notable feature of this tour is Audio Analysts' new AALTO P.A. system, the details of which were still under wraps at press time, but Kerns could say, "It's the best-sounding loudspeaker cabinet that I've heard, and it's the most accurate. Very good and very quiet." These seem to be legitimate claims; sound at the show *Mix* heard—one of two nights at the Berkeley (Calif.) Community Theater—was as pristine as it was powerful. The system includes 24 cabinets—12 on highs and 12 lows—and the Crown IQ System. "Since we're doing theaters, we've got some really tall balconies. Via the IQ, I'm able to turn down the individual cabinets or change stuff here and there. I don't know how I lived without it before.

"And the room is quiet enough that you can hear a pin drop," Kerns continues. "You can hear anybody talking in the hall, but I haven't heard a word spoken yet during the show, because the crowd is so into it. The loudest things out there are the fans from the outboard gear. I've had to disconnect those fans because they get too loud."

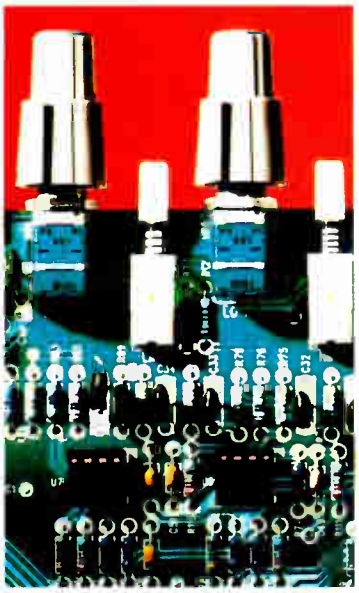
Kerns started the tour mixing on a Yamaha PM4000 console, as did monitor engineer Fred "Gumby" Jackson, because, Kerns says, it was available when the tour was announced. But, obviously, the big boards are a bit of overkill, and the engineers planned to switch to something more manageable when the opportunity arose—possibly when they got back to the East Coast.

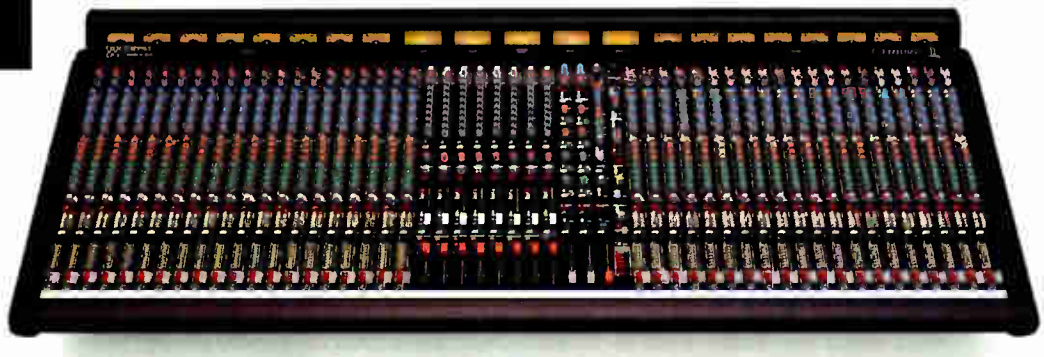
Jackson, whose credits include Patti LaBelle and New Kids on the Block, was also part of the '92 Springsteen tour. The stage monitors this trip are Audio Analysts' new low-profile 12FR wedges. "It's really smooth," he says. "It doesn't have any of the usual bite that I would require for really loud shows. We started out with just two wedges out there, but the P.A. came on, of course, which tends to drown a few things out, so I put two more on the sides, so you have a mini-arc. I do a vocal feed pretty much even on all four, and I do some guitars in the middle, less guitars on the outside mix. It's probably the easiest thing I've done in my life."

Jackson stresses, however, that although the mix is relatively straightforward, it requires an especially minute level of attention. Springsteen's frequent guitar-switching and tuning, and the changes to and from harmonica parts, require very precise adjustments. And with such similar instrumentation throughout the show, Jackson has had to find his cues in new places. "For myself, it's a nice change. Instead doing a show where there's a full band, and you're just always going by cues in the music, I'm really getting into a lot of the lyrical content, actually taking my cues from lyrics. And I'm just amazed watching him play, hearing how some of the songs are translated, because he's such a great songwriter." ■

Here's the best part

Our latest offering, the Century Vx! It boasts eight VCA groups, a 12 x 8 matrix, eight discrete aux buses, L-C-R panning, eight audio groups and a stunningly competitive price. All Century Series designs use reference grade chips, while electrolytic capacitors have been eliminated from the audio signal path to minimize phase shift. Superb headroom is achieved with +/- 20V power supplies and robust long-term reliability is built-in. So, if you want to take part in breaking sound barriers without being taken apart, call us.





CREST CONSOLES Century Series

CREST CONSOLES Breaking sound barriers

Crest Audio Inc. 100 Eisenhower Drive. Paramus. New Jersey 07652 USA Tel: 201 909 8700 Fax: 201 909 8744

New Sound Reinforcement Products

EAW FL103

The FL103 from EAW (Whitinsville, MA) is a trapezoidal, bi-amplified three-way loudspeaker system designed for high output (124dB peak SPL) and natural reproduction. Switchable to full-range passive operation, the FL103 contains a 1-inch compression driver on a WGP™ waveguide for 100° conical HF dispersion, and a 6.5-inch cone transducer in a vented sub-enclosure for midrange. LF transducer is a 15-inch woofer. Construction features 18-ply crossgrain-laminated Baltic birch and a vinyl-coated steel grill.

Circle 212 on Reader Service Card

IN-EAR MONITORING WHITE PAPER

Garwood Communications (Newtown, PA) is distributing a ten-page technical white paper on in-ear monitoring (IEM) concepts and technology. The paper, which explains how IEM works and answers frequently asked questions, is available free from Garwood Communications at 215/860-6866.

Circle 213 on Reader Service Card

GENERALMUSIC GROOVE SERIES

GeneralMusic Corporation (Bensenville, IL) announces the new Groove Series sound reinforcement consoles. Available in 26-, 36- and 44-input configurations, the consoles feature phantom power, 3-band EQ with semi-parametric mid and bass, 6 aux sends and professional long-throw faders. Stereo input channels facilitate handling of stereo sources (effects, samplers, keyboards, etc.), and the consoles are supplied in 14 mono/6 stereo input, 20/8 and 28/8 configurations. Retail prices are $2,825 for the Groove 14+6, $3,495 for the Groove 20+8 and $4,325 for the Groove 28+8.

Circle 214 on Reader Service Card

FERROSOUND RETROFIT KITS

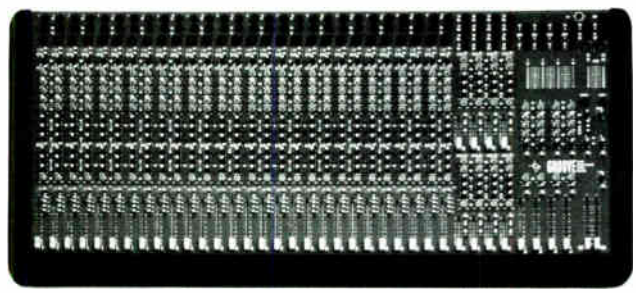
Ferrofluidics Corp. (Nashua, NH) announces that Parts Express, an audio parts mail-order firm, now carries FerroSound ferrofluid retrofit kits. Ferrofluid can improve the performance of dome-tweeter and cone loudspeaker drivers by dampening impedance peak at resonance to reduce distortion and increase power handling. The kit contains measured amounts of Ferrofluidics' ferrofluid, filter paper strips for removing old ferrofluid, and detailed instructions.

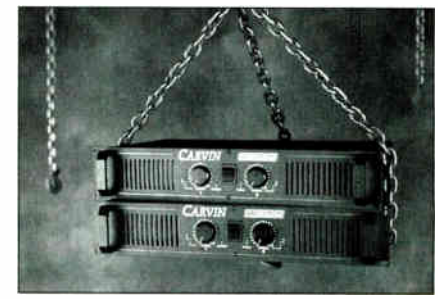
Circle 215 on Reader Service Card

MARTIN WAVEFRONT W0.5

New from Martin Audio (Kitchener, Ontario), the Wavefront series W0.5 is a miniature, portable two-way passive system featuring an 8-inch woofer and a 1-inch ferrofluid-cooled compression driver on a 70°x50° constant-directivity horn. Designed for industrial and commercial applications, the W0.5 may be used as a standalone system or coupled with other W0.5s to form an array.

Circle 216 on Reader Service Card

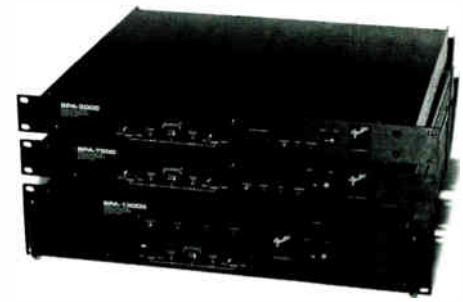




CARVIN F-SERIES AMPS

The F300, F600 and F1200 professional F-Series power amplifiers from Carvin (Escondido, CA) feature a new 6th-generation MOSFET design and include super-duty linear power supplies with toroidal transformers. Front-pull fan cooling ensures maximum cooling efficiency. All F-Series amps have full thermal, short-circuit and speaker protection.

Circle 217 on Reader Service Card



FENDER PRO SPA AMPS

The new SPA Series dual-channel power amps from Fender Pro (Scottsdale, AZ) feature a D-sub accessory port option for computer control and monitoring. The port provides an audio insert loop, and senses temperature, load status, operating mode and amplifier clipping. Ranging from 150 watts to 1200 watts per channel (into 4 ohms), the SPA Series includes the SPA-3000, SPA-7500, SPA-13000 and SPA-24000 models. XLR, ¼-inch and barrier strip inputs and Speak-on, ¼-inch and binding-post outputs are standard.

Circle 218 on Reader Service Card

PHOTO: BOB LANOIS

Emmylou Harris and Daniel Lanois

EMMYLOU HARRIS

THE MAKING OF "WRECKING BALL"

By Rick Clark

Some of the greatest American music blurs the lines of delineation between genres and draws from the common well of human experience. Emmylou Harris' second Asylum album, *Wrecking Ball*, mixes elements of Appalachian folk, Delta blues, black and white gospel, country and rock to create an emotionally resonant collection of 12 songscapes.

Produced by Daniel Lanois and recorded in Nashville, New Orleans and San Francisco, *Wrecking Ball* (which features songs by Steve Earle, Bob Dylan, Lucinda Williams, Neil Young, Jimi Hendrix, Anna McGarrigle and Lanois) is one of the most uncompromising releases of Harris' 24-album career.

"It's important to make music that is exciting and inspiring to you as an artist, to keep fresh and have some excitement and enthusiasm for the music," says Harris. "I wanted to make a record that was focusing more on the left-field aspect of the music. I have always felt that I was outside the loop, and have wanted to be outside the loop, because I think it is important to constantly break down boundaries, barriers and categorizations. Basically, I was doing that by working with Daniel.

"I was asked by the record company if there was anyone I would like to work with, if I could work with anybody. I immediately said 'Daniel,'" recalls Harris of the producer whose credits include Bob Dylan, U2, the Neville Brothers and Peter Gabriel. "Everything I heard that touched me and moved me musically in the last few years has been something that he has been involved with."

It just so happened that Lanois was in between projects and eager to collaborate with Harris. Lanois' richly textured, ambient production signatures and Harris' blend of solitary, aching frailty and

—CONTINUED ON PAGE 183

PHOTO: MALCOLM BURN

(L to R) Lucinda Williams, Harris, Steve Earle and Richard Bennett

KEITH OLSEN

UPDATING GOODNIGHT L.A.

by David John Farinella

Producer Keith Olsen has two guiding principles when he is in the studio: The first is keep it simple. The second revolves around a single word: play. "Keep it simple is a major order, because if you need all this complex stuff to make a song work, there's something wrong with the source," Olsen says. His second mission statement causes him to fall into a cadence of one-liners: "Play music, have fun, don't think about it so much..." Of course, this is Keith Olsen, *the* producer of power pop from the mid-'70s through the early '90s, speaking. His multi-Platinum album list includes some of rock's biggest acts: from Fleetwood Mac to the Grateful Dead, from Pat Benatar to Foreigner, from Whitesnake to the soundtracks for *Footloose*, *Top Gun* and *Flashdance*. That's just a partial list, but chances are that if you bought any albums in the '70s or '80s, at least one of them probably had Keith Olsen's name on it somewhere.

Olsen says, with slight tongue-in-cheek, that about 70 million of the 85 million records out there with his name on them were recorded at his own studio, Goodnight L.A., which is in the same industrial park as his former favorite haunt, Sound City (where the hits of the '90s have found a home, from bands like Nirvana, Frank Black and Tom Petty) and Full Blast rehearsal studios. At one time, the space that is now home to all of those Platinum records was a radiator shop. That was in 1978, though, before Olsen

—CONTINUED ON PAGE 190

OSCAR BROWN JR.

BACK WITH "THE BROWNS"

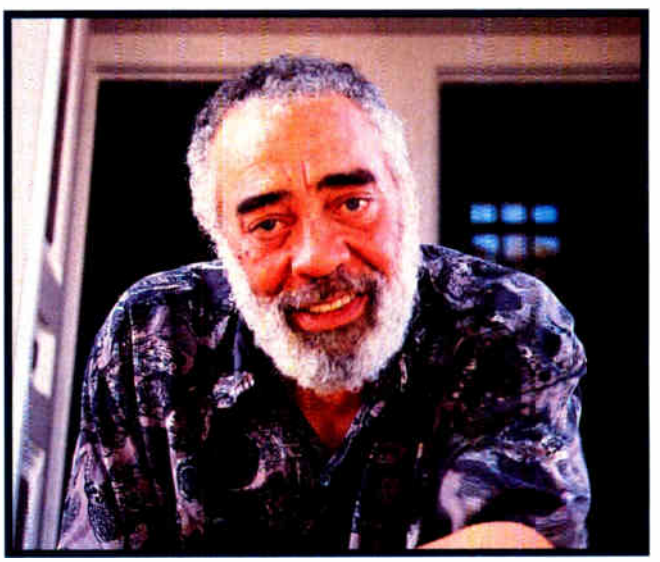
by Barbara Schultz

Most people's childhood memory banks contain a lot of music. The loudest memory in mine is a single line from an Oscar Brown Jr. song, "Hymn to Friday," which my dad used to put on every week. It's the fast-approaching patter of bongo drums, a single, low trombone note and the singer's joyful voice asking, "Hey, do you know what day this is?!" It was an everyman song for the time of its release (1962), celebrating the happy moment when a working man comes home to his family to start off the weekend. It's from the artist's second Columbia release, *Between Heaven and Hell*: a beat-ish big band record that glories in the earthy poetry of everyday life.

"My songs started when I was a kid flipping rides on the wagons that peddled down our alley, hiding and seeking and learning there is more than one world," Brown wrote in the liner notes to his first album, *Sin & Soul*, in 1960. "Most of my worlds are Negro. Negro is not always pleasant, but it is vigorous exercise for the soul. The melodies I make up grow out of tunes, rhythms, chants, calls and cries that have always sung to me. My lyrics are verses about feelings I've felt and scenes I've dug. My aim is to deliver messages that swing and entertainment that is meaningful."

Brown not only drew on his own experiences and

—CONTINUED ON PAGE 187



PHOTOS: CORK MARCHESCHI

Engineer Karl Derfler

JONI MITCHELL'S "PAPRIKA PLAINS"

By Blair Jackson

By now it's probably clear to regular readers of this column that "Classic Tracks" isn't really about "hits," per se. I'm more interested in finding songs that show how particular artists, producers and engineers work in the studio, rather than just shining the light on a song that sold a lot. And, of course, I have my personal favorites, which don't always coincide with the mainstream; in fact, they usually don't. A case in point is Joni Mitchell, whom I regard as one of the most brilliant artists of the past quarter-century. The conventional choices for this column would probably be "Big Yellow Taxi," "You Turn Me On, I'm A Radio," or "Help Me"—radio favorites from early in her career. But I've always favored her material from 1976's *Hejira* on. Don't get me wrong, I loved *Ladies of the Canyon* and *Blue* and *Court and Spark*, but for some reason it wasn't really until *Hejira* that I found myself really connecting with her songs on a personal level and getting wrapped up in Joni's sprawling artistic vision, which encompasses both obvious and veiled autobiography, vivid sketches of real and imagined characters and situations, and observations and descriptions that are sometimes realistic, sometimes novelistic, but always painted in hues as rich as her original paintings that have frequently adorned her album covers through the years.

For most of the past two decades, Joni has been following a path that has been apart from the commercial center of pop music, yet her songwriting is as vital as ever; indeed, I would place her two most recent records, *Night Ride Home* and *Turbulent Indigo*, among her best. That these records have been largely ignored by radio says more about the pitiful state of radio than about the quality of the discs. The radio snub is nothing new to Joni, either. Back in 1977, she followed up the popular *Hejira* album with an ambitious double-record set, *Don Juan's Reckless Daughter*, that remains one of the "lost" gems of her career.

Like *Hejira*, it featured the revolutionary fretless bassist Jaco Pastorius, soprano sax ace Wayne Shorter (both then peaking with Weather Report) and drummer John Guerin, as well as a spicy battery of percussionists on several tracks, including Airto, Manolo Badrena, Alejandro Acuna and Don Alias (Joni's boyfriend during that era). Most of the songs are driven by Joni's crystalline vocals and always-unusual guitar voicings.

PHOTO: HENRY DILTZ

Joni Mitchell with Henry Lewy, 1983

The anomaly on the album is a 16-plus minute opus called "Paprika Plains," which occupied all of side two when the album was released (it's now all on a single CD). This is surely one of Joni's grandest works, both lyrically and musically. It flows effortlessly back and forth between the past and present, childhood and adulthood, earth and sky, memory and imagination, innocence and despair. In part it deals with the sad plight of Canada's Indians—romantic figures from her childhood who later "traded their beads for bottles/Smashed on Railway Avenue/And they cut off their braids and lost some link with nature." It is also concerned with the security of childhood visions and with the destruction of the natural world—even "the vast and bleak and Godforsaken Paprika Plains"—by man. Weighty stuff, to be sure, but it's handled imaginatively.

Instrumentally, it features Joni on piano rather than guitar for a change, backed by a beautifully arranged orchestra that helps give the piece the sweeping grandeur of the land her words evoke. At the song's heart is a long instrumental passage of piano and orchestra (in the accompanying lyric booklet, there is a lengthy poem designed to be read by the listener during this part of the song). When Joni's voice comes back for a restatement of the sonorous main theme, lyrically the scene shifts to a crowded barroom, and then there's a funky, churning instrumental coda by Shorter, Pastorius, Joni and

HHB ADVANCED MEDIA PRODUCTS
THE FUTURE IS SECURE

DAT Digital Audio Tape

Three years ago at HHB Communications, the world's leading independent supplier of DAT technology, we set ourselves the challenge of developing the world's most technically advanced DAT tape. Naturally we were delighted when, less than a year later, HHB DAT Tape came out on top in the detailed testing of seven leading DAT tape brands, conducted independently by Studio Sound magazine

Well now there's more good news for discerning audio professionals everywhere.

Announcing the HHB CDR74 Recordable CD – the latest of HHB's Advanced Media Products.

COMPACT disc Recordable

Once again, we set out to be the best. Fully compatible with the new generation of high speed writers, the 74 minute / 680MB disc employs a revolutionary Phthalocyanine organic dye recording layer to ensure a secure archiving period well in excess of 100 years. What's more, the HHB CDR74 is "Double Coated" for further protection against scratches, fingerprints, humidity and light.

DDS Digital Data Storage Media Recognition System

Also new to the HHB Advanced Media Products range is the DDS90M, a high performance 90 metre data DAT cartridge incorporating many of the design innovations alreacy proven in HHB audio DAT tape.

At HHB, we know that your recordings are valuable. Thanks to HHB Advanced Media Products, the future is secure.

For full details of HHB Advanced Media Products, please mail this coupon to Independent Audio

Name: _____

Address: _____ City: _____

State: _____ Zip: _____ Tel: _____

Independent Audio Inc · 295 Forest Avenue Suite 121, Portland, Maine 04101-2000, USA · Tel: 207 773 2424 · Fax: 207 773 2422 · E-Mail: 75671.3316@compuserve.com
Studer Canada Ltd · 1947 Leslie Street, Toronto, Ontario M3B 2M3, Canada · Tel: 416 510 1347 · Fax: 416 510 1294
HHB Communications Ltd · 73-75 Scrubs Lane, London NW10 6QU, UK · Tel: 0181 962 5000 · Fax: 0181 962 5050

MIX

HHB

USE READER SERVICE CARD FOR MORE INFO

Guerin that takes us out of the dream-world until the final notes of the piece, when the strings and a singing bassline from Jaco quietly end it. Breathtaking!

Beginning with her *Clouds* album in 1969 and continuing through 1982's *Wild Things Run Fast*, Joni cut all her albums (12 in all) with engineer Henry Lewy, usually working at A&M Studios in Los Angeles. The German-born Lewy was already a veteran in the L.A. recording scene when he first hooked up with Joni, having worked on everything from The Chipmunks (at Liberty Studios) to the Mamas & the Papas and Johnny Rivers (both beside Bones Howe at United & Western). Mainly because of the reputation he garnered from working with Joni, during the '70s and '80s Lewy became an in-demand producer/engineer, especially for singer-songwriters, including Van Morrison, Stephen Bishop, Joan Armatrading, Leonard Cohen and others. He's been retired for several years now.

Back in 1983, Lewy told me, "Most of the artists I've worked with already know what they want because they're artists with their own vision. They're individualistic, and to try to change them or shape them to fit my preconceived notions would be to take away the heart of the issue—their creativity." In the case of Joni, he said, "She didn't need a producer per se, but more of a third ear, a catalyst between her and her material. I was a teacher and listener at first. When we first got together, she didn't know anything about the studio, really. When we'd overdub vocals, for instance, she was so insecure that she had to hold a guitar. As the years went on, she picked up the engineering aspect more and more, and today [1983] she knows what a studio can do for her and she knows how to get what she wants."

When Lewy and I spoke again recently, he said that during the entire course of their working relationship, he used the same approach to recording Joni—namely, always getting the guitar and vocal (or piano and vocal) down first, with Joni singing and playing at the same time, and then building the other tracks around that core. As he noted in '83, "If there are too many players, she has a tendency to lose the intricacies of her guitar playing, and she'll play *with them* instead of them playing *with her*. And since her guitar is the heart of the arrangements, you lose something when that happens."

For the *Don Juan* album, Joni tracked all of her vocal, guitar and piano parts (including the long piano section in "Paprika Plains") first in A&M Studio C, using two Neumann U87s on the piano and a U87 on the vocal, going into the studio's venerable HAECO (Holzer Audio Engineering) board and a 3M-79 24-track. "I always left her voice very dry," Lewy says. "I wanted the voice way out there so you could always understand the words, but at the same time I wanted you to be able to hear the band distinctly, too."

It was Jaco Pastorius who suggested to Joni that Michael Gibbs take a stab at orchestrating the song. "Michael met us in L.A., and he and Joni decided what instruments were needed," Lewy says. "Then we had to go to New York because Michael taught at a school nearby." The orchestral session took place at Columbia Studio C in Manhattan, "a big theatre stage," Lewy recalls, with Columbia staffer Frank Laico engineering. The orchestra played to the master tapes of Joni's piano and vocal part. "I left about ten tracks for the orchestra, so at least I had some control at the mixdown stage," Lewy says. "We did it in a three-hour session, plus half an hour of overtime.

"After the New York date, we flew to London, as that was where we could get Jaco, Wayne Shorter and John Guerin all together. Basing Studio was a jazz studio, small but efficient, with good tea and biscuits. We did all of Jaco, Wayne and Guerin's parts [for the entire album] there. Jaco was [recorded] direct, and we'd often double-track him to get an even bigger sound. We'd use a mic on Wayne, and usually we'd put a lot of digital echo on the saxophone to really stretch it. Once we finished recording there, they made a quick and dirty mix for us, and Joni, John [Guerin] and I took it to L.A., where we finished the overdubs in Studio A at A&M." The album was mixed in about five weeks by Joni, Lewy and assistant Steve Katz at A&M's Studio Mix One.

"There were many overdubs on the vocals," Lewy remembers," and for the orchestral part, there were many starts and stops, as Joni decided how long it should be. As a matter of fact, I conked out—as I wasn't too well—and Steve Katz edited the orchestral part with Joni. We also fixed some of Joni's vocals in the mixdown. In the time between recording in Studio C and recording in New York and London, she decided to fix certain parts of the vocal."

Of course, the magic of a well-executed recording like this is that in the end, the production sounds completely

seamless, as if Joni, the band and the orchestra had all been together in the same room and had nailed a perfect take. "Paprika Plains" remains perhaps the most ambitious single work of Joni's career (parts of *Mingus* come close), still overlooked by most of her fans but not diminished at all by time. "What I love about Joni," Lewy said in '83, "is that she never sits still for a second. She's always thinking, always moving forward. She grows with every album, which is, ironically, one of the things that turns some fans off. They get used to her doing one thing and then she changes. She has a real appetite for new ideas." ■

—FROM PAGE 178, EMMYLOU HARRIS

quiet strength proved to be a perfectly organic match.

Harris wanted to do the initial tracking in Nashville, where she lived, so Lanois chose Woodland, an established Music City facility that features quite a bit of fine vintage gear and comfortable recording spaces.

"I liked the vibe of Woodland," Lanois notes. "They had this wonderful old 8068 Neve console and this big old room. It wasn't overly designed and reeking of technology. Sometimes, when places are just too pristine and thought-out, they're too domineering somehow."

The album's highlights are hard to pick, but Harris' version of Neil Young's "Wrecking Ball" and Dylan's "Every Grain of Sand" are notable, as are Steve Earle's "Goodbye," Hendrix's "Waterfall" and Anna McGarrigle's "Goin' Back to Harlan."

"I think a lot of the material on this album is nonspecific," Harris says. "I like to sing about something that isn't necessarily about anything specific, because I think that it is not that cut-and-dried. One emotion is suggestive of another emotion. It's a mysterious process that I don't understand, and I don't think I need to understand it," she says with a laugh. "Maybe if I did understand it, I wouldn't be able to do it anymore."

Guest performers on the disc include Young, U2's Larry Mullen, Earle, Richard Bennett, Tony Hall of the Neville Brothers, and Kate and Anna McGarrigle, among others.

"The lion's share of the album was performance-oriented," Harris explains. "We would sit really close together with no separation and work up the

arrangements and go for a performance, with a live vocal and minimal amount of overdubs.

"Bleeding into the microphones was kind of encouraged on this record," she adds. "With that, I think you get another participant on the track, which is the room and the energy and the performance. It's an ambience that you can only get going with that live situation. Ultimately, I think all of us were into the simplicity of the emotional impact and not hitting people over the head with, 'Oh, this is really virtuoso playing,' or whatever. It was all passion-driven.

"Daniel brings something unusual and moving to the sound of the musical instruments," Harris says. "He also has this wonderful rhythmic sense of creating powerful rhythms that don't tromp on the melody. There is all of this space happening around everything. That was quite inspiring to sing to."

"I think there is a character, or personality, that rings through the whole record that I like quite a bit," Lanois says. "Whatever atmospherics this record has, it just got through the initial raw performance. There are not a great deal of overdubs or keyboard atmospherics on this record. Emmy is singing live off of the floor, by-and-large. There is an urgency that you get out of that setting that you wouldn't otherwise get with overdubs."

Lanois enlisted long-time creative foil Malcolm Burn to handle much of the engineering and mixing chores, as well as to add some instrumental parts. "It's a musical relationship," Lanois says. "It seems that we say the most when we just play together. I guess we've been playing together for so long that we just pick parts that are related and musically connected somehow. Malcolm's parts aren't particularly flamboyant; they just sit in there right. That can be really useful if all you are looking for is a higher harmonic result, rather than something coming out in your face."

Burn (who describes his piano work as "Pink Floyd Cramer") helped create some of *Wrecking Ball*'s most poetic atmospheric interplay during a version of Earle's "Goodbye." Burn played spare lyrical parts on an upright, while Lanois added an electric Vox mandoguitar.

"We almost got the old Spector '60s sound, not by layering, but by really compressing what was already there in-between the melodic events happening between these two instruments," Lanois explains. "What happened was, the mandoguitar and this upright piano were somehow related, probably because the three-stringed notes of the piano were slightly out of tune and the mandoguitar was slightly out of tune, and the two instruments kind of turned into one. We put a huge amount of compression on the piano and the mandoguitar, and it turned into this fantastic, chimey harmonic instrument."

Another highlight on *Wrecking Ball* is a version of Hendrix's seldom-covered gem "May This Be Love." Lanois says, "Given that Emmy had come from the country melodic world, I wanted to point out to her that those kind of Celtic

PHOTO: MALCOLM BURN

melodies existed in a lot of kinds of music. Hendrix used a lot of those kinds of melodies, so I demonstrated to her that 'May This Be Love' was, in fact, very much like an Irish violin melody. It is almost like a lullaby.

"'May This Be Love' has only two instruments. It's just drums and me playing guitar, live off of the floor. Emmy is singing, and I am singing a harmony. It's one of the most textural, atmospheric numbers on the record, and yet it has no overdubs. It doesn't even have any bass. It's got a lot to do with the processing on the guitar. If Hendrix was still alive, I think he would like that bit of processing. It's really an Eventide 3500 with a modified stock sound that is kind of like a twin octave, lower-octave/upper-octave sound."

To add to the sonic richness of the spare track, Burn lifted the tonic note of the song's root chord and looped it back as the performance was going down. "As I was playing, Malcolm did this sample of something I was playing and printed it onto the tape, so there was this undercurrent drone that was going on all along," Lanois says. "Because the chords were very simple, it acted as a pedal tone to the other changes. You might say that it's like taking a snapshot of a moving picture and then just having that snapshot there all the time, as everything else moves. The fact that it comes from the instrument that is already playing, it sounds related. It doesn't sound like an overdub, or some other instrument.

"The song that has the best bottom is 'All My Tears,' which was the first track that we cut in Nashville," Lanois continues. "It has two bass parts—a keyboard bass, which plays a very simple fundamental funk part, and a top part that I played with a great 1969 Telecaster bass with pretty muted strings. Brian Eno used to do that stuff with the Talking Heads—*Remain In Light* has a lot of that, so this is kind of a steal from that record."

For "Orphan Girl," Lanois had bassist Tony Hall play the stick drum, as opposed to keeping him on his own instrument. "If things start sounding too commonplace on people's normal instruments, then I just ask them to play another instrument, just to come up with things from a more unusual or stranger angle. It is a nice backup technique and a way of keeping things fresh," states Lanois. "Musicians are artists, and artists need variety. In my experience, artists will create with almost any tool you present them with. It can be fascinating if you have your hands on something that you normally don't play, the idea being that the artist in you should be able to override the tool that you are presented with. You should be able to make something out of anything. Musicians of that caliber can usually come up with something interesting with any instrument. It is a theory I try and apply when I get stuck."

Wrecking Ball was recorded at 15 ips on Ampex tape with Dolby A, which Lanois feels is a "very musical" format. He and Burn are also fans of printing loads of low-end information onto tape.

"Depending on how you hit the tape, EQ and whatnot, I tend to add 60 cycles, where most people will take it away," Burn comments. "I find that if you hit the tape in the right way, the tape acts as a natural compressor. That's why reggae records and rap records sound so great. They're pushing that frequency that most rock people are trying to get away from. I tend to go for as much bottom as possible."

According to Lanois, Harris' voice (which was recorded with an old Sony

PUT ME BEHIND BARS

Lock Me Up And Forget about Me

The **CP 62** Commercial Preamplifier: A compact, affordable paging/background-music/zone level controller that is easy to use and remote-controllable.

You serve the drinks, we'll provide the mixer.

The CP 62 gives restaurants and lounges custom control of phone page, mic/announcement page, background music and priority/foreground music — with automatic over-ride and ducking. Priority over-rides background, and paging over-rides both.

Stuffed to the gills.

In addition to routing four stereo sources and two paging inputs, the CP 62 provides individual programs to two separate zones, each with its own 7-band EQ, source select switch, level control, remote control jack, insert loop, rear panel maximum volume limit control, and very flexible assign and ducking controls.

Remotely capable.

Remote wired volume and source select controls can be mounted where they're easily accessible to management or staff, allowing the CP 62 and other equipment to be located for convenience, security and minimum-noise performance.

Reach me at the office ... or the health club.

The CP 62 is as effective at work as it is at entertainment. Multi-room medical/dental offices, health clubs, retailers and other commercial facilities can enjoy cost-effective and user-friendly control of background/foreground music and paging functions.

R1 & R2 hardwired remotes available for source, zone & level control.

The innocent-looking **CP 62** is the key to *locking up* your next install.
If you don't use it, it's a crime.

PURITY BY DESIGN
RANE
MADE IN USA

RANE CORPORATION
10802-47th Ave.W.,
Mukilteo, WA 98275
(206) 355-6000
Fax (206) 347-7757

PURITY BY DESIGN™

USE READER SERVICE CARD FOR MORE INFO

C-37A tube mic) took on a special resonance as the nights wore on. "Emmy would sing better and better the later it got. As a result, a lot of the vocals we got were nighttime vocals, when all defenses were down," says Lanois.

Lanois cut the drums with a selection of Coles and RCA ribbon mics. "We were pretty hot on these Coles ribbon microphones. They're BBC mics from the '50s, and they're still being made," he says. "We used a combination of those and some RCA ribbon mics on the drum kit. Those Coles ribbon mics will get you out of trouble on a kick drum. If you have a kick drum that is nasty and isn't going anywhere, put a Coles mic a couple of feet away from the drum and it's just really flattering to the bass drum. That is how we got that warm bottomy sound."

Lanois and Burn also printed loads of EQ to tape for many of the sounds. "We added lots of bottom, lots of mids and lots of top," Lanois laughs. "There is something that happens when you tax those preamps and equalizers. They overdrive in a musical fashion. I am just taking advantage of what that technology has to offer."

Lanois also notes that he is a big advocate of documenting special recorded moments or settings, in order to ensure that he is on top of all that has gone down during a session:

"If we have a great vocal, then the parameters get written down. If there is a great echo being used, it gets written down. Everything gets written down. In the end, whatever you think is stand-out is documented on paper. Many times, I have found that, come mix time, I'm really trying to duplicate a great rough mix that maybe has some overdubs that have to be included. Maybe the vocal has been repaired, so it's really vital to have written down the ingredients that are really important to you."

After recording *Wrecking Ball*, Lanois toured with Harris throughout the United States and Europe. While doing a pre-concert performance at a record store, Lanois had a chance to soak in what had been documented on *Wrecking Ball*. "We did a gig at Tower Records in New York," he says, "and before we did the performance, the store played the whole record. For the first time, I could hear the record objectively, as a listener. I have to say that it sounded like a finished record," he laughs. "I enjoyed everything as it went by, and it had a sense of continuity to it. There was no scrutiny, and I didn't have to try and pick faults. I like the whole

record. I wish I hadn't worked on it—I'd go out and buy it, because I actually enjoyed it just as a listener."

Harris also feels that *Wrecking Ball* marks a special development in her long career. "My eclectic love of different songs and lyrics and openness to different musical ideas, and Daniel's ability to plug into that and bring his own very unique ambience and emotional sound was just wonderful," she says. "I think it elevated these songs to another level. His production is a real shining star. I loved what he did, even before I met him. I just trusted that he was going to come up with something. I trusted that the sound he had on his other records was going to be inspiring to me. If I'm inspired, then I'm happy. I would say that every song we did nailed me." ■

—FROM PAGE 179, OSCAR BROWN JR.

observations but also turned to other artists and other media for inspiration. His "Elegy (Plain Black Boy)" on *Between Heaven and Hell* sets Gwendolyn Brooks' poem ("Drive him past the pool hall/Drive him past the show/Blind within his casket/Yeah, but maybe he'll know...") to a hollow-sounding death march; "When Malindy Sings" on the same album gives a building big-band voice to the heroine of Paul Lawrence Dunbar's poem. Very simply, Brown brought a singer/songwriter's sensibilities to the jazz music of the time and has continued to do so since 1960.

PHOTO CORK MARCHESCHI

L to R: Oscar Brown Jr., Oscar Beau Brown III (bass), engineer Karl Derfler, Bob Lurie (drums) and Lance Kaufman (piano)

Brown continued cutting albums until the mid-'70s, when record company interest seemed to disappear. So, though he continued to perform live, staged musicals, served as artist-in-residence at three colleges, and has acted in television programs such as *Brewster's Place* and *Roc*, his presence as a composer and singer has not been felt by a wide audience for about 20 years. But that was recently remedied by a new album, *Then & Now*, on San Francisco's Weasel Disc Records. It's Brown's first release since 1975.

Cork Marcheschi, who runs the independent label, says his work with Brown began in early 1995 in response to a totally unrelated performance. He'd gone to see a show at San Francisco's Fillmore Auditorium with a friend; the music was supposed to be an integration of rap and jazz, which intrigued him. "There were three rappers, one scratcher and a seven-piece band onstage," Mar-

PHOTO: CORK MARCHESCHI

cheschi writes in his liner notes to *Then & Now*. "The band played stock riffs and fills and was mixed at such a low level that the experience was like wallpaper. On the drive back to my place, I talked about Oscar Brown Jr., who was compassionately putting words to music in a narrative style unheard of at that time, long before Dylan, Lennon and McCartney or Gil Scott Heron." Marcheschi pulled out his old copies of *Sin & Soul* and *Between Heaven and Hell* and played them through for his friend. The next day, he headed for the record store to pick up the CD versions but found that none was available. "I was outraged," writes Marcheschi. "A crime against nature." So he set about tracking down Oscar Brown.

"He came down to Ojai to see me when I was performing and followed that up with a visit to Chicago [Brown's home]," Brown recalls. "We reached a meeting of the minds. Within 90 days of the time I met him, we had recorded." Marcheschi brought Brown to San Francisco to discuss the project and record. He suggested that Brown re-record some early work in addition to some new songs, seeing as the early work was not available. They settled on eight early titles and eight more recent, unrecorded songs.

Marcheschi set up his living room as a rehearsal space. He spent a couple of days working out the basic ideas with Brown and then brought in the rest of the core band: Bob Lurie on drums, Lance Kaufman on piano and Brown's son, Oscar Beau Brown III, on bass. "Every night we had friends come into the kitchen and cook," Marcheschi recalls. "Musicians would play, cooks would cook. We would all eat and then get back to the music." Five days later, they all headed across the bay to Bay View Studios in Richmond, Calif.

Production was another whirlwind affair. Recording and mixing were completed in five days, with veteran recording engineer Karl Derfler behind the desk. Derfler, whose main work these days is with producer/recording artist Jerry Harrison, usually commands a fee far beyond the capabilities of Weasel Disc, but he squeezed the project in between two other clients "because of Oscar. I was definitely going to be there for that. When something piques my interest that much, money is of no consequence," Derfler says.

The room they used at Bay View is an unusual configuration. The control room, which is equipped with a Soundcraft TS424 console and Meyer 813 monitors, is upstairs from the studio, so the engineer looks out over the musicians. "The bands like it because they can ignore you completely," Derfler says. "But the room is spectacular. It's very large, with two extremely isolated booths." Derfler says Brown prefers to record all of his vocals live, with continual interaction with the band, so there were some isolation problems to solve. "I know this might sound strange," he says, "but I think we wound up using a [Shure] SM7 on his vocal. He would walk out into the main room and count the band off and get them into a groove, and I'd always beg him to walk back to his booth and

sing in there, which he didn't like to do too much. Sometimes the doors would be open, so I needed a mic that had a little tighter pattern.

"I think we also used a little bit of a stereo, short delay on his vocal to make that mic sound a little wider," Derfler continues. "We used no effects, really, except for a little reverb on the new songs that were supposed to have some spaciness, but all the old songs are just a natural room sound. I do like compression, though. That's one of my main tools. We used a little bit on the whole track, and I compressed the lead vocal a little bit through a [UREI] 1176."

For Lurie's drums, Derfler says, he used an AKG D-112 on the front head "because Bob's kit is a very jazzy kit, and he likes the front beater side on the drum." But beyond that, he's a little sketchy on the details, because the project conserved finances by going without a second engineer, and no notes were kept. "The snare would have been an [AKG] 452 or a [Shure] SM57" he says. "The hi-hat definitely would have been a 452 or 460, and the toms would be [Sennheiser] MD-421s. The overheads could have been a Sony C37 or AKG C-414s. The bass would have been an [Telefunken] Elam 251 or a 47 FET. Piano was [Neumann] KM84s."

Additional instrumentation was brought in for some of the songs, to fill out the jazz sound. "I know Oscar was slightly concerned about it being the quartet routine," Derfler explains. "He definitely was more accustomed to larger, big-band production. There were guitars, which would have been a combo of the Elam 251 and a close mic of probably a C37 or a 421. Horns were all with Elam 251s or with an 87. Cello would have definitely been with an Elam 251."

Derfler says they all worked 12-hour days to get the project done in the time allotted, recording to Ampex 499 2-inch, though near the end he recorded a couple of songs on his DA-88 because they had run out of tape. He mixed the album immediately after the recording was completed, in a day-and-a-half, with some input from Marcheschi, Brown and Beau Brown, who serves as his father's music arranger as well as bass player.

Then & Now showcases the old songs in new ways. "Dat Dere," from *Sin & Soul,* is an obvious example. The original intent of the song was to describe, through the intertwining of a

son and father's voice, the curiosity of a child and the father's feelings of responsibility to guide the boy; in its current incarnation, the song includes a couple of lines about the little boy growing to become a great bass player, followed by a quick solo from Beau Brown. The newer compositions show us Brown today, still topical ("Debris" uses the Oklahoma City bombing as a metaphor for a failed marriage), still caring ("Hymn to the Homeless") and still very much concerned with the world of the black man in America. One highlight, "The Entertainer," adds lyrics to the famous Scott Joplin rag: "Was there much of a damn they gave/About this talented son of a slave/When the brother passed on/Another nigger just gone, without a marker to put on his grave." Brown describes his own work best. "What I'm doing is 'The Browns,'" he says. "It's like the blues, but it incorporates a whole bunch of stuff. It's also greens—nourishing. And it's like reds—radical. It's musical, poetic pictures of things that happen from time to time in life."

Next, Brown says, he wants to record as many of his backlogged songs as possible: "If this one does well, I'd like to record an album a month. I just turned 69 years old, so I'm not in for the long haul. I'm interested in coming to a really hip conclusion, and that would involve debriefing myself of all these songs that I've been writing for all these years, seeing the fruits of my labors." ■

—FROM PAGE 179, KEITH OLSEN

and studio designer George Augspurger came in one day with chalk, a tape measure and an idea for a new studio. "I got tired of trying to track down studios to work in," is how Olsen explains his decision to build his own studio.

He was also tired of what had become the industry standard of moving from studio to studio during the recording process. You know how it goes: Three days of recording in one studio, a half-day of tearing down and packing up, a day of aligning machines, setting up equipment, setting tones, getting used to the monitors. When it's all said and done, you lose a couple days, which when added up over four albums a year and a couple of moves, amounts to a couple of weeks a year. Then, of course, there's

the money factor. "The cost of it just became ridiculous," says Olsen. "So, I thought we could get the best equipment around, put it in a room, charge a reasonable rate to my own artists, and everything would be fine."

So, that's what he did. After finding the blank warehouse space, doing his math, chalking the floors and designing the joint, Keith Olsen had himself a studio. Actually, the first album that was recorded in Goodnight L.A. was done while the studio was still in construction. "I was recording a project next door at Sound City, and I wanted to use the sound of this room. So, The Babys' album was actually recorded in this room before it was done. They liked the drum sound here."

Shortly after that, Goodnight L.A. opened its doors. Well, that's not altogether true. Goodnight L.A. opened its doors to Olsen's own projects and was kept private up until the early '90s. "Goodnight was a vehicle so I could offer my clients a comfortable atmosphere where they could come and just take over the place. They don't walk into the hallway and run into four other artists that are working in three other studios down the hall," he explains. The doors were opened to the public earlier this decade without losing any of the original design, according to Olsen. "For someone to come into the studio now who is not someone I'm working with, Goodnight kind of offers the same situation where you come in, you've got a lounge, an office to work out of, the studio, the control room, a bunch of iso booths and all the stuff. It's all in there, you can just go in and use it. There's no extra charges, and you don't have to bring anything in."

Olsen admits it took a while for him to become completely comfortable with the idea of opening his studio to the public, noting "A lot of people drive studios like they drive rental cars, and it was always a fear of mine to come back not knowing what it was going to be like when I got back."

From a technical standpoint, Goodnight's claim to fame is its board, which is one of the only working Trident DI-ANs on the face of the planet. Olsen says the DI-AN, an early (and now discontinued) digitally controlled analog console, is one of the few virtual boards that is easy to use. It features 72 inputs and 32 outputs, with Disk Mix moving fader automation, and Olsen claims that one day at the DI-AN will make an engineer never want to go back to knobs again. In addition to perfect pitch reference recall, the DI-AN enables the engineer/producer to set levels just once, then save the song to computer disk, and have every level returned—from headphones to effects to panning to EQs. "It sounds the same on day five as it did day one," says Olsen. "Because of that it gives you a certain amount of confidence."

The DI-AN has 24 aux sends and 32 buses, so, as Olsen says, "you dedicate stuff all over the place. If you want to get to a particular piece of gear, you push a button instead of saying: 'Okay, aux send one *this time* is going to be this chamber and aux send two *this time* is going to be something else. It's always the same, you're always getting to the same pieces of gear."

Olsen is also impressed by the DI-AN's ease of operation for remixing. Whereas on a conventional console it might take an entire day to remix three songs, on the DI-AN, Olsen has remixed ten songs in just five hours. That's about 30 minutes to get the tape on, load the mix, do the trims and print it again. That simple ability makes everyone from the artist to the producer to the record company happy.

Still, while a board is an important ingredient in most successful studios, it is not the only one. Although Goodnight L.A. jumped on the digital bandwagon back in 1987, Olsen has brought analog recorders back to supplement the Sony 3324s, and he's peppered the studio with some of the best outboard gear available, including the Publison DHM 89 B2, Neve stereo limiters and compressors, the Lexicon 102 digital delay, a handful of Yamaha reverbs and the Eventide H949 Harmonizer. In addition to designing the studio, George Augspurger designed the studio's monitoring system with JBL components.

Whether it's his work with a newer band like San Francisco's Ted 302, whom he co-produced with Tesla's Troy Luccketta, or a demo he produced for former Cars guitarist Elliot Easton, Olsen's work philosophy remains constant and simple: "We're supposed to be having fun playing music. That big four letter word called *play*. We're supposed to be playing in this place more than anything else." If you try hard enough, you can picture Olsen leaning over a new band's shoulder and yelling at them: "HAVE FUN!" It is music, after all. ■

TAPE & DISC NEWS

INDUSTRY GROUP REACTS TO 3M DECISION

Responding to the announcement by 3M that it would discontinue audio and videotape-manufacturing operations over the coming year, the ITA has issued a statement forecasting record sales volumes for tape products over the years to come. To back up its claims, the ITA (trade association for the recording media industries) cited figures from its own Worldwide Market Intelligence Report, based on confidential surveys of member companies.

According to the current report, demand for blank videotape is expected to grow 3.5% in 1996, with "home video program units" projected to rise a similar percent. And while the RIAA reported that prerecorded audio cassette sales were off some 15% for the first half of 1995 over the same period a year earlier, the organization says that its members "have not reported drastic fall-offs of audio cassette pancake sales..." The ITA's explanation is that the weakening of the cassette in music markets has been made up for by the growth in the spoken-word market.

The ITA's view of the importance of spoken word is echoed in comments made recently by Jim Williams, president of both Gauss and Electro Sound. In a company press release, Williams noted that, "while music cassette sales grew only 2.5% in the U.S. in 1994, the spoken-word cassette market in the U.S. is growing by as much as 25% annually. Sales of spoken-word tapes, including audio books, reached $4.3 billion in 1994. The key to the spoken-word market growth is the analog cassette, at least through the end of this decade." Among the advantages Williams cites for the cassette in the spoken-word field are longer playing time than CDs and greater penetration in the key automobile player market.

PROSPECTS FOR HIGH-DENSITY CDS

Rival groups promoting different versions of a future high-density CD product may have ironed out their major differences—thereby averting a format war in the digital videodisc (DVD) market—but efforts are ongoing to ensure that the new format will be versatile enough to accommodate the variety of uses envisioned for it. In combining the Toshiba/Warner-backed SD (super density) proposal with the MMCD proposal from Sony/Philips, industry power brokers came up with a backward-compatible CD format allowing up to 4.7 gigabytes of information per layer in either single- or dual-layer configurations.

In DVD applications, the new

BY PHILIP DE LANCIE

Microtech Conversion Systems and OptoMedia Engineering introduced their automated CD-R duplicator at COMDEX.

discs would offer up to 4.5 hours of MPEG-2 video with multichannel sound and multilingual subtitles. But because of its massive storage capacity, the new disc has attracted attention from the multimedia industry, not only as a way to enhance multimedia delivery on CD-ROMs for computers, but also for its potential to really open up the market for "set top" players delivering multimedia to TV screens. To that end, the Interactive Multimedia Association and the Laser Disc Association are working together to identify features required to support development of interactive titles for the DVD format, hoping that the makers of DVD players will take their needs into account.

Though most of the discussion of high-density CD has so far focused on DVD, at least one industry forecasting firm is predicting that the real driving force behind adoption of the new disc will come from the CD-ROM market. According to projections released by InfoTech, high-density drives should account for 39 million units—one third of all CD-ROM drive sales—by the year 2000. Stand-alone linear DVD players should just be reaching the 10 million mark by that time, while high-density interactive set-top machines should sell about 6 million. InfoTech's Julie Schwerin explains the fast takeoff projected in the CD-ROM market by noting the rapid market acceptance of ever higher rotational speeds for conventional CD-ROM drives, and predicting that a switch to high density will offer an easier path to higher throughput than pushing conventional drives past 6x speed. In the home video market, on the other hand, high-density players will not completely replace VCRs (because VCRs can record), and thus will have a harder time justifying their place in consumers' homes.

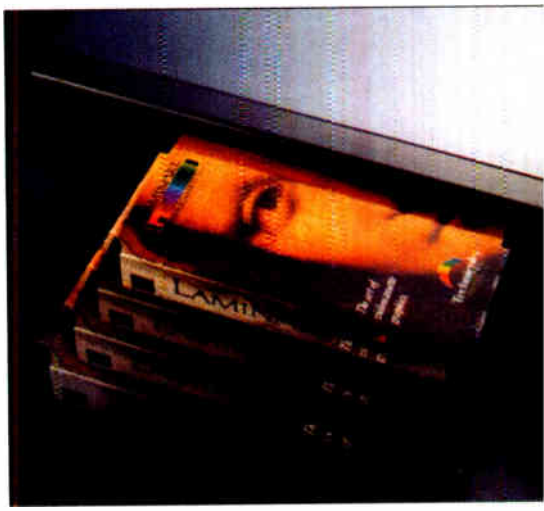
BLUE BOOK DRIVERS FROM COREL

When Sony, Philips, Microsoft, Apple and the RIAA got behind the Blue Book standard for enhanced CDs last summer, many in the music and multimedia industries felt a mixture of relief and frustration. Naturally, it was positive to see broad support for a unified approach to combining music and multimedia on one disc. But the choice of a "stamped multisession format" meant that only about 60% of the current installed base of CD-ROM drives would be able to play the new discs, and most of those would need new software drivers to do so. (In contrast, the single-session "pregap" or "track-zero" approach favored by many independent labels is said to play on at least 80% of existing drives).

To address this problem, Microsoft, Sony and the RIAA said that they expected to see a number of initiatives develop for getting the appropriate drivers into the hands of CD-ROM drive owners. In keeping with that effort, Corel Corporation recently announced an agreement with Sony and A&M Records under which the labels will be allowed to bundle their enhanced CDs with Corel's Drivers for Enhanced CD, a device driver upgrade kit which also includes diagnostic software to help consumers figure out if and how their computers can run enhanced CDs. The kit is designed for machines running Windows 3.1 or higher or Macintosh System 7.0 or higher. Corel will also be providing "front line technical support" for the bundles.

SPLICES

Saki Magnetics (Calabasas, CA) reported the sale of 400 ferrite recording heads for high-speed audio duplication to **Linfair Engineering & Trading Company** in Taipei, Taiwan. Saki also announced that duplication gear maker **Lyrec** (Skovlunde, Denmark) had "endorsed" the new Saki WK ferrite recording head for use on Lyrec's new 128:1 duplicating slaves...**Crystal Clear Sound/Tapemasters** (Dallas, TX) upgraded its high-speed cassette-duplicating operations with the addition of a digital bin...**Cassette Productions Unlimited** (Arden, NC) added a third automated line to produce its "audio-book pack," increasing the production capacity of the 1-4 cassette packages to 100,000 units per day. CPU expects to introduce a similar package for CD and CD-ROM applications this month...**Embassy Cassette** of Santa Ana, CA has doubled the capacity of its Versadyne 1000 Series high-speed cassette duplication system with the purchase of additional slaves and a PT-250 production monitoring system. Versadyne (Campbell, CA) also sold three additional Series 1000 slaves and six added Series 1500 slaves to **Global Cassette** in Phoenix, AZ. Global also purchased three CD9000 loaders from **Concept Design** (Graham, NC)...**Oracle Packaging** (Toledo, OH) introduced Laminart, a process in which high-quality paper board printed graphics are bonded directly onto a videocassette shell (see photo). Graphics ranging from black and white to full color may be bonded on any of five shell surfaces, for up to 57 square inches of printable area. Oracle offers the process as a service, and has also licensed it to video duplicator **Technicolor**...**Microtech Conversion Systems** (Palo Alto, CA) joined with **Opto-Media Engineering** (Salisbury, England) at COMDEX to demonstrate an automated CD recording system capable of loading and recording up to 144 CD-Rs at a time. Based on Microtech's ImageMaker CD-R duplicator and OptoMedia's Hawk Autoloader, the setup is designed for multishift production applications involving runs of ten to 500 CDs...**Intersound Multimedia** (Roswell, GA) announced the introduction of enhanced CD development services including concept development, design, mastering and manufacturing. Intersound currently has 17 of its own Audio+ enhanced CDs on the market...The Rolling Stones selected **AIX Entertainment** (West Hollywood, CA) to design and produce an "i-t-rax" (pre-gap) enhanced CD based on their new album, *Stripped*. AIX, sister company to mastering house **Pacific Coast Sound Works**, has also produced an i-trax single based on the 1977 Bing Crosby/David Bowie television performance of "Peace on Earth/Little Drummer Boy"...**Future Disc Systems** (Hollywood, CA) has brought online their new mastering suite, Studio 5 (see the cover of *Mix*'s December '95 issue)...**Pacific Microsonics** (Berkeley, CA) reports that new albums from Tom Petty, Pam Tillis and Stephen Stills were mastered using the company's Model One HDCD Processor...San Francisco's **Rocket Lab** mastered *The Best of C-BO* for Awol Records, a live album for R&B soul revue Pride & Joy and a new CD for Japanese power punks The Mad Capsule Market. ■



Oracle Packaging's Laminart

COAST To

L.A. GRAPEVINE

by Maureen Droney

Businesses in the burgeoning NoHo district (that's North Hollywood to you provincials) are persistent and tough. They've had to be, since the conveniently located area (which is anchored by the Academy of Television Arts & Sciences and home to numerous cafes, funky shops, studios and audio support facilities) has had to face the tribulations of Metrolink construction—torn up streets and general chaos while the city creates a major underground station. Although I couldn't get a projected completion date from Mayor Riordan's office, some of that chaos now seems to be subsiding, with streets mostly clear and the light at the end of the tunnel presumably drawing closer. This month *Mix* checked in with three NoHo denizens, MCA Music Media Studios, Andy Brauer Studio Rentals, and the new-to-the-neighborhood Los Angeles Recording Workshop.

At MCA Music Media I spoke with Nick Dofflemyer, director of quality assurance and, as he calls himself, "de facto manager," who filled me in on past history and future direction. Evolving since the days of MCA Whitney Studios in Glendale, where Pat Benatar and Barry White, among others, recorded hit records,

—CONTINUED ON PAGE 200

Andy Brauer at his Studio Rentals facility

PHOTO: MAUREEN DRONEY

NY METRO REPORT

by Dan Daley

Refit Time—Quad Recording is finishing a several-year complete refitting of its four studios with the renovation of Studio A, which will get a complete acoustical design reworking capped with the installation of an 80-frame, 64-input SSL 9000J console. The 9000 replaces a 72-input SSL E/G board that will move to another of Quad's studios, displacing a 64-input E/G console that was traded in on the 9000J purchase. All four of Quad's rooms have SSL boards. Renovation

—CONTINUED ON PAGE 202

Museum VP Bruce Shackelford (L) and president Dan Gaydos are shown seated in front of a console on exhibit at the Museum of Sound Recording, Brooklyn, NY. The console was designed and built by Western Electric in 1947 for MGM's New York studios, where it was used for major-release sound re-recording. Its 20-channel, 4-bus passive design is a predecessor of many Pulse Techniques (Pultec) designs, which were licensed to them by Western Electric. The console, serial number 8 of 12, is the only one of its series known to exist and is fully operational.

COAST

PHOTO: WYATT MCSPADDEN

Left: The Derailers recorded their self-titled debut at Austin's Arlyn Studios with producer/American roots master Dave Alvin. Alvin is surrounded by bandmembers (L to R) Tony Villanueva, Brian Hofeldt and Vic Gerard. The album is out this month on Watermelon Records.

Below: Recent sessions at New York's Pilot Recording Studios include Bo Diddley, Mike Manierri, and The Last Men, a "super group" featuring well-known players such as Marshall Crenshaw, Graham Maby, Tony Maimone, Clem Burke and Alan Bezzozi. The project is the brainchild of Mark Zoltak, who produced. Studio owner Will Schillinger engineered, with assistance from Steve Corson, Joe Sansone and Chris Rushin. The well-equipped studio features a Trident Series 80-C console, Sany 3324 24-track digital, Otari Mx-80 24- and 32-track analog, and Tannoy, E.M. Long and Yamaha monitoring.

SESSIONS & STUDIO NEWS

NORTHEAST

Lemonhead pretty boy **Evan Dando** came in to New York's **Baby Monster Studios** with Hole's slamming rhythm section—bassist **Melissa Auf der Maur** and drummer **Patty Schemel**—to record the "Zero" song for a Schoolhouse Rock compilation on Atlantic. **Bryce Goggin** produced and engineered, assisted by **Jaime Candiloro**. **Black 47** were also in tracking and overdubbing for a new release with **Ian Bryan** at the controls...At **Normandy Sound** (Warren, RI) engineer **Paul Hager** mixed new tracks for **Letters to Cleo**, and **Tom Soares** was in working on a new album for **Dog Eat Dog**...Scandamania: Norwegian melody masters **Ruby Fruit Jungle** recorded four tracks with producer/engineers **Brian**

SESSION SPOTLIGHT

SOUL COUGHING, POWER STATION

by Adam Beyda

Last November New York quartet Soul Coughing tracked their forthcoming second release for Slash in Power Station's legendary Studio A over a period of ten days. That might seem a short time in which to record a highly anticipated major-label LP (the band's first effort garnered critical raves). But live playing is the band's M.O., and their recording sessions are primarily about capturing performances. Extensive touring in support of their debut had given the band the chance to hone their groove and to develop new material, so when it came time to hit the studio again, they were primed.

Producer/engineer David Kahne (whose credits include work with Tony Bennett, the Presidents of the United States of America, the Neville Brothers and Fishbone) shepherded the band through some rehearsals before setting them up at Power Station. Studio A is based around a custom 40-input Neve 8068. The large tracking room (with a ceiling height of 35 feet at its highest point) can be divided into three isolated sections and has two additional iso booths. Kahne placed drummer extraordinaire Yuval Gabay in the big room with a P.A. to drive into the ambient mics. Vocalist/guitarist M. Doughty sang and played in one adjacent room, while bassist Sebastian Steinberg and keyboardist Mark De Gli Antoni were set up in another, with bass and guitar amps placed in separate iso booths.

Pictured at Central Park, NYC, Soul Coughing are (clockwise from front left) M. Doughty (vox), Sebastian Steinberg (bass), Mark De Gli Antoni (keys/sampler) and Yuval Gabay (drums).

Kahne and assistant Tim Boland recorded the band to 16-track (changing the headstack on Power Station's Studer A800) to get a greater depth of sound on tape. But the limitations imposed by having only 16 tracks to work with also helped Khane and the band realize the aesthetic they were working for. "We had to decide more what the sound was we wanted on a particular song to go to tape," Kahne says. "There was only at the most six tracks of drums for instance, instead of 12. It was just agreed on to make as many decisions as up front as possible, and that made a really big difference. It makes you focus more on the performance that you're going for—not only whether or not it felt like a good performance, but whether or not it sounded like a good one. It's not in the back of your mind that you can go fix things later when you limit your possibilities. Pushing the faders up to hear really good sound was the goal for the tracking."

Because the band had their material so well-rehearsed going into the studio, tracking proceeded quickly. "There was a lot of spontaneity in the feel of the performances," Kahne says. "Slightly different tempos with this band make a huge difference in what the record sounds like. If everybody was laying way back on one take and pushing on the next one, there would be a lot of difference between the takes."

The band play rather minimal music (jazzy funk grooves combined with a kind of beat surrealism), so the mechanics of tracking were relatively straight forward—pretty standard chains for the drums, upright bass and guitar. The anomaly in terms of the band's live approach is De Gli Antoni, whose playing includes a lot of triggering samples live. As the band composes material in the process of rehearsing and performing, De Gli Antoni works up a palette of loops and samples that come to pertain to particular songs. In the studio, he'll trigger and recall samples live, manipulating the sounds (with a whammy stick, pedals, pitch wheel) in response to the groove of particular performances. "I always send out a stereo signal and put out my own effects," he says. "Samples always integrate themselves better in a band when they're coming through an amp, I think. It puts it in a similar space to where the guitar and bass are coming from. Whatever you can do to make a sampler less digital is a good thing."

After tracking, the band expected to spend ten days overdubbing, but the recording had gone so well that only a minimum of overdubs were needed. The album was mixed with assistance from Tchad Blake and is due out this spring, so watch out—it could be a hot one. ■

Charles and **Pete Weiss** at Boston's **Zippah Recording**. Dutch alterna-rockers **Cords** also invaded Zippah, tracking with producers **Malcolm Travis** and **Robert Fisher** for TVT Records... Angel/EMI artist **Frank Sinatra Jr.** recently recorded a tribute to his father (due out this month) in **Clinton Recording**'s (NYC) Studio A. Chief engineer **Ed Rak** manned the Neve 8078 with production guidance from **Hank Cattaneo** and arranger/conductor **Terry Woodson**. **Adam Blackburn** assisted...**Russ Gershon** and Accurate Records were in Boston's **Sound Techniques** mixing a tune for the **Either Orchestra**'s *Tenth Anniversary* release. **Jim Anderson** engineered with **Tom Richards** assisting. **Dean Harada** and **Adam Mujica** also came in to produce a track for vocalist **Ace**. **Dave Kirkpatrick** engineered, with Richards assisting...**John Shea** was in **Merlin Studios** (NYC) recording the audio book tie-in of the new LucasArts CD-ROM game The Dig. **Kevin Thomsen** produced and **Curt Frager** engineered...

SOUTHERN CALIFORNIA

Legendary Led Zeppelin bassist **John Paul Jones** was in Studio A at Los Angeles' **Skip Saylor Recording** producing Sony recording artists **Elefant Ride**. Engineer **Brian Foraker** mixed the album with **Jason Mauza** assisting. The production team of **Soulshock** and **Karlin** were also in mixing the debut album of **Unique** for Elektra Records. **Manny Marroquin** engineered with Mauza assisting...

NORTHWEST

The Mr. T Experience tracked their new Lookout Records LP at Berkeley, CA's **Bay Records Recording Studios** with producer/engineer **Kevin Army** and second **Jim Ruzicka**. Folksters **Katy Moffatt** and **Kate Brislin** were also in recording and mixing a Rounder Records project produced by **Jody Stecher** and engineered by **Bob Shumaker**...Staffer **Daryn Roven** and Telarc engineer **Bruce Leek** recorded **Dave Brubeck and Sons** in Studio A at San Francisco's **Russian Hill Recording**. Roven also recorded a CD with local artists **Jim Campilongo and the Ten Gallon Cats**, produced by **Joe Goldmark**...

NORTH CENTRAL

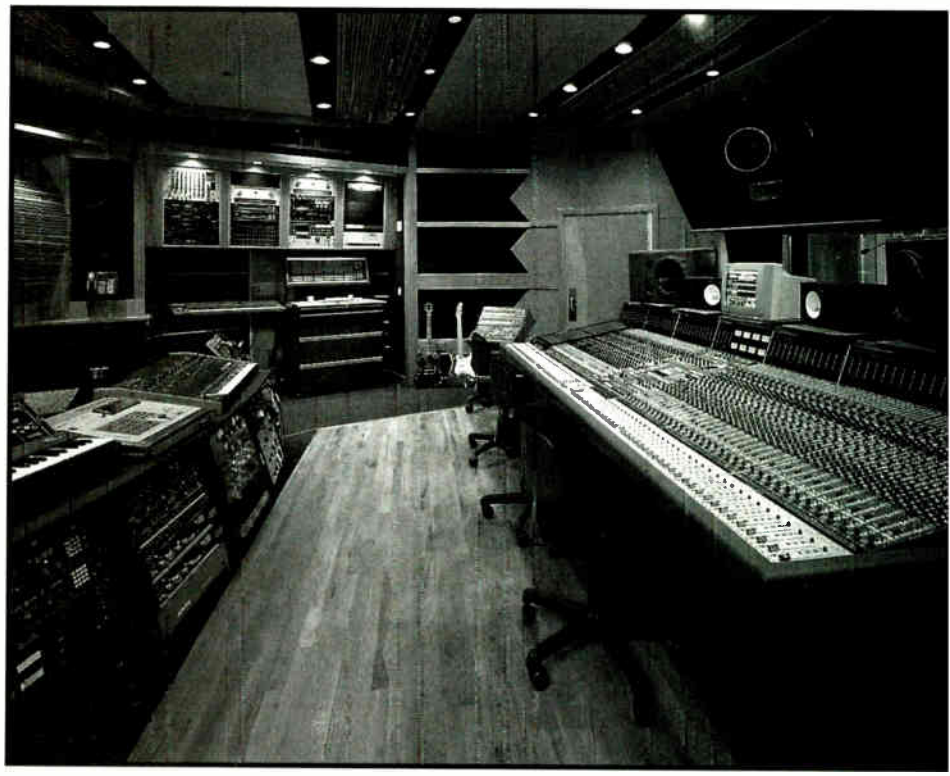
Funk alternative band **Backodabus** recorded their debut CD at **Miracle Sound** in Oak Creek, WI, with co-production by band leader **Gary Wortham**

NEXT MONTH

Coming in Mix
March 1996

Digital Recording

- **TECHNICAL FEATURES**
  - New Digital Multi-effects Processors
  - Digital Editing on MDMs
  - Digital Mixing Forum with Phil Ramone & Frank Filipetti
- **REGIONAL FOCUS**
  - Southeast U.S.
  - New Orleans
- **LIVE SOUND**
  - Touring Loudspeakers
  - Steve Miller Blues Band
- **AUDIO POST-PRODUCTION**
  - Sound FX Libraries
- **PLUS!**
  - Bonzai Lunches with Brian Wilson
  - Trumpeter/Film Composer Mark Isham



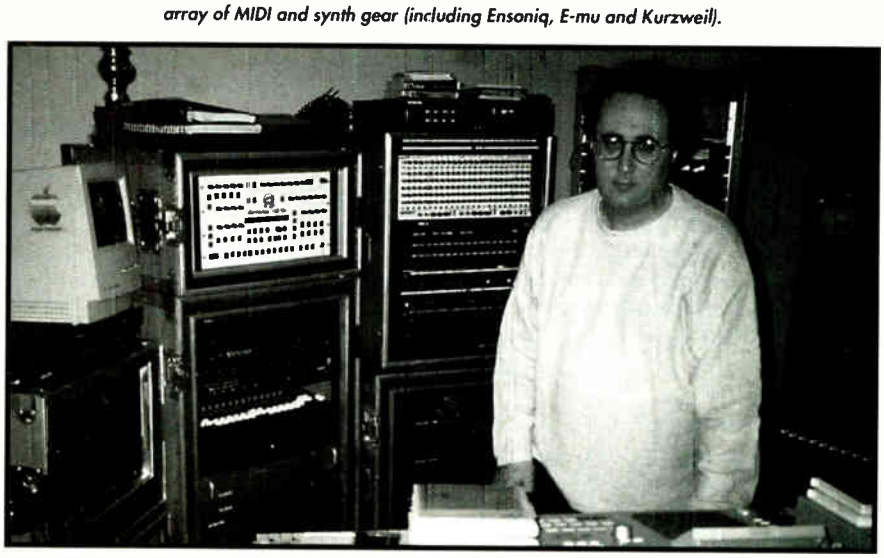
New York's Chung King Studios recently opened in a new location, occupying three adjacent floors in downtown Manhattan. Pictured is Studio A, which features an AMS Neve 72-input VRP console with Flying Faders automation.

and engineers **Paul Dry** and **Tom Williams**...**Gary Tanin** recorded vocals and tracked guitar at **The Alley Studios** in Milwaukee for a collaborative project with Japanese artist **Toshi Hiroka**...

SOUTHEAST

Producer **Dallas Austin** and engineer **Alvin Speights** were in Atlanta's **D.A.R.P. Studios** working on remix projects for **Michael Jackson**, **Michelle Gayle** and **D'Angelo**...Pavement Records/Zoo Entertainment artists **L.U.N.G.S.** recorded their label debut at **Reflection Sound Studios** (Charlotte, NC) with producer **Steven Haigler** and engineer **Tracey Schroeder**...**Don Williams** tracked a self-produced Amer-

Producer and keyboardist Jason Miles is pictured in his Washingtonville, NY-home studio. Last year Miles produced People, *an all-star session commemorating the 50th anniversary of the United Nations, featuring performers such as Al Jarreau, Dave Koz, Ivan Lins and Vanessa Wiliams. He's produced a project for Nana Mouskouri (out this spring on PolyGram), and is now at work on his second solo LP for Lightyear. Studio equipment includes a Mackie 1604, 16 tracks of ADAT, Tannoy and Yamaha monitors, and a wide array of MIDI and synth gear (including Ensoniq, E-mu and Kurzweil).*



Producer Bob Margouleff (L) and engineer Brant Biles are pictured at Enterprise Post's (Burbank, CA) AMS Neve Capricorn, mixing Boyz II Men's "Coming Home" live concert special for the Disney Channel.

ican Harvest release at Nashville's **Sound Emporium** with engineers **Dave Sinko** and **Carl Meadows**. **Betsy Hernandez** was also in with producer **Frank Hernandez** and engineer **David Schober** overdubbing for a Sparrow Records release...

SOUTHWEST

The bilingual children's album *The World of Mayte* was recorded and mixed at **Keith Harter Music** in San Antonio, TX. Harter produced and **Marius Perron** engineered. Texas singer/songwriter **Rusty Martin** was also in mixing his new album with engineer **Steve Curreton**...**The Texas Tornados** recorded for Reprise Records at Austin's **Arlyn Studios** with producer **Jim Dickinson** and engineer **Stuart Sullivan**. **Slobberbone** was also in Arlyn woking on a Doolittle Records release with producer **Jeff Cole** and engineer **Carl Beatty**. At sister studio **Pedernales** in nearby Spicewood, TX, the **Beach Boys** and **Willie Nelson** tracked for River North Records. **Brian Wilson** produced, and **Larry Greenhill** engineered. **Mojo Nixon** came in as well, tracking for Sector II Records with producer/engineer **Mike Stewart**...

STUDIO NEWS

The **San Francisco Audio Network** installed a 32-track **Pro Tools III** system with TDM in its Studio A...The Seattle chapter of the **American Federation of Television & Radio Arts** recently honored Bad Animals/Seattle president **Steve Lawson** as producer of the year...**Leon Russell** recently purchased an **Otari Concept I** console, as did **Encore Video** of Hollywood, CA. Schools recently installing Otari's **Status** console include **Florida State University** in Tallahassee, the **Musicians Institute** in Hollywood, CA, and **Hennapin Technical College** in Eden Prarie, MN...**Conway**'s (Los Angeles) Studio A **Neve VR72** is now online. This console was the first to receive the M.D.L. sonic enhancements package...**Chicago Music Works** installed the city's first **Tactile Technologies** console, a 96-input T2 model. ■

PHOTO: NEIL SEIFER

Artist/producer Sasha (L) and Mick Taylor are pictured at New York's Savebone Music. Taylor contributed his virtuoso axe-work to a new blues/rock project masterminded by Sasha.

—FROM PAGE 194, L.A. GRAPEVINE

the facility today boasts seven production rooms in a high rise on Lankershim. They handle projects from CD prep and quality control for MCA's Uni Manufacturing to sonic restoration and state-of-the-art mastering for a very diverse group of clients. And I do mean diverse—on the day I stopped in an engineer was cleaning up the tape made by the pilots from Apollo 8 to wish everyone 'A Merry Christmas From Space!'

The newest addition to the complex is its mastering room, designed by MCA chief engineer Larry Quinn with acoustical architechture by BOTO Design. It's configured to process signal flow via all 24-bit digital, all analog, or any combination of the two. Main monitoring is by DynAudio M3s, with processing via TC Electronics' M5000 system with MD2 mastering module. EQs are GML and vintage Sontech, and all editing is on Sonic Solutions workstations.

Comments Dofflemyer, "Some people thought we were nuts to open a mastering room, with so many great ones already around. But it was a natural outgrowth for us. We have three Sonic Solutions systems, and we were already an open house for sonic restoration work. And we have always been premier in that area. Even to this day there is not a large portfolio of really well-versed Sonic engineers—because it is so complex, and because expert sonic manipulators with great ears are rare birds. But we were the first major record company to start working with Sonic. Back then they had hardware and software, but they didn't have the ears, so they worked out a deal and we became a beta test site. Therefore, we've always had a leg up in experience, and we've had great Sonic engineers.

"When we hired Sonic 'guru' Eric Labson, the people who worked with him on restoration started coming to Michelle [Mosler, MCA Studio's production manager] and myself and suggesting that he should not be narrowcast—that he had the ears to do contemporary mastering. These were producers who had been in the business a long time, and I took their suggestions to heart. So we evolved, and we've been getting very busy. We just finished the Marvin Gaye tribute album and the new Boyz II Men on the Motown label. I feel we are moving into a new level of major artist mastering."

Both Dofflemyer and Paul West, VP of studio operations/engineering for MCA Music Entertainment Group, are proponents of the 8mm Exabyte DDP format for mastering. Says West, "I'm in that unique position where I'm responsible for studio and manufacturing engineering for a label, and I had the choice to make. We did all the research to figure out which direction to go, finding out the negatives of all the other formats vs. the positives of the Exabyte. The 1630 is no longer being supported, we already know the problems it has, and it has no longevity. You can get parts, but it's a fifteen year old technology, and it has no built-in security as far as dropouts. Exchanging tapes over the years has been a pain, as any mastering facility can tell you. It's a finicky ¼-inch format and we've trudged along with it, but it's limited for future use. CD-R is an inferior medium for transmitting data between points A and B. First, you have to modulate the data on a consumer grade EFM modulator in the CD-R system. The second problem is the introduction of a high rate of jitter into the datastream. We've done studies that prove its high jitter rate—so why deal with it? But the bottom line and the major problem is that you can hear the sonic degradation.

"So what's left?" West continues. "Exabyte, and we did studies on it. It is a format that has a high degree of error detection and redundancy code written into it. Since it is a computer backup format to begin with, a lot of companies with LAN systems use Exabyte for backup. That has been their main business. We use it with the DDP format, written by a company called DCA, Doug Carson and Associates. They took the concept and wrote a file format for this specialized use. Another advantage is in being a non-modulated storage system—that is, it has no sound, unlike the 1630 or the CD-R where you're actually modulating something. It's pure data storage, and the only sound it has is whatever A-to-D or D-to-A you put it through. No sound means you're not altering anything, which is key. It also has a failsafe feature in that it has bit mapping as an error correction, and if there is a problem in mastering it will flag it and abort the cut. We all know the problems of muting, compatibility and general playability that 1630s have. Exabyte is just a more robust medium. And they are 6 or 7 dollars a piece, so it's economical. Another thing, it's not locked into a standard. You can use 20-bit at 44.1 or 48. Lastly, there are no timing constraints—it holds 3 hours and 20 minutes of music.

"Right now," West adds, "I don't know any manufacturer in the U.S. that doesn't accept it. I know all the Nashville

facilities have been delivering Exabyte directly to us, and it's been going very, very well. Sterling has done a few—if a facility requests it they'll make it. A lot of mastering rooms have been using Exabyte for archiving with Sonic Solutions, and there is some confusion about that, because for Sonic Solutions archiving, it's a completely different file format. Some of the problems that existed with the archiving format don't exist in the DDP mastering system. We've mastered over 4000 tapes, and the plants bounced back maybe only three to five to date. We've had a couple of selections where we used the Exabyte 70 to 100 times to master—and the tapes are still good! You'll never get a 1630 to do that!"

"Europe has been using them even longer than we have," adds Dofflemyer. "Phillips, the tonemeisters of the world, are on the cutting edge, and this has been a well-accepted standard for several years now for them. I like to do all the assembling, sequencing, mastering, and EQing to 8mm as CD premastering format if I know the plant accepts the format to make the glass master. With a DAT backup and CD-R, that will reduce the amount of components needed and reduce the overall costs for a client. They can hold sonic integrity truer to the actual master tape and not walk out with so many different components or unnecessary formats.

"Our room, however, is capable of cutting two 1630s, two DATs, three CD-Rs and an Exabyte and a variety of cassettes all in one simultaneous pass. So we can save you time and money. We're a creative facility, and our hope is to work with the new and up coming producers who are building up their portfolios—to build relationships and that way build up our portfolio of mastering clients."

Around the corner at Andy Brauer Studio Rentals I met up with, who else? Musician, columnist, guitar tech, rental and cartage company owner, guitar lover and now, record producer and studio owner, Andy Brauer himself. He breezed in straight from a session where he'd been working on guitars with John Fogerty. He made sure that all the amps and guitars on display were neatly arranged in their proper positions (this is one neat rental house), handed me a stack of articles he's written for guitar magazines, checked his messages, gave me a tour, and finally stopped to take a breath and play me a tape that he's just produced for country artist Billy Barr, Jr.

Brauer began playing guitar at age 11 and got his start in the business by working in a guitar store and collecting guitars. From there he soon went to work tech-ing and getting guitar sounds in the studio with the Brothers Johnson and Quincy Jones. Brauer Studio Rentals started in 1979, and now, as a piece on him in *20th Century Guitar* magazine puts it, he has an "impressive array of classic American guitars and amps and an equally impressive client list." On it, to name just a few, are Eric Clapton, Don Henley, Don Was/the Rolling Stones, Johnny Cash and Travis Tritt.

The guitars and amps in view are gorgeous—and almost all of them are completely stock. If a non-original is purchased, it is restored back to perfect original condition, down to correctly dated pots. When a customer calls to request an instrument or amp, more than one is brought over so they can choose which one they like best. And guitars are fully setup when brought in—ready to play.

The newest innovation at Brauer Rentals is a cozy studio fitted with Mackie, ADAT, Akai, and Fostex gear. The big hook? When you use the studio, you also get full access to the instruments and amps, over 150 of them, and the giant warehouse where Brauer has already recorded some great-sounding drums. Some guitarists would call this heaven! Think about it—come in, try out

a few different combinations, dial up your sounds and lay down your guitar and bass overdubs. Pretty cool, eh?

Brauer has recorded all his productions in his own studio. His inspiration comes from those those early sessions with "Q," and he says, "I learned that great producers put together a team of great musicians and let them run—not to interrupt the creative process, but to oversee it. I've done three records now, and I guess that's my style as a producer. My goal is to take what the artist hears in their head and make it an enjoyable process to create the music."

What's next for Mr. Renaissance Man? Look for Andy to have his own TV show called "Axe to Grind" a "musician-friendly info and entertainment program." You know, like *Friends*, with guitars.

The Los Angeles Recording Workshop, run by Christopher and Roseanne Knight, was in business at their old Studio City location for 11 years before making a move in '95 to their new 12,000-square-foot NoHo facility. The site was a former Bank of America, and LARW spent nine months renovating and building to suit. Now there are 11 studios for training, with the main studio designed by Peter Grueneisen of studio bau:ton and fitted with a Solid State Logic SL4000G plus with Total Recall and Ultimation. The nationally accredited school also provides training on Pro Tools III, Avid and Mediacomposer systems and has an online computer lab. The current student body numbers about 85, but with the expansion they expect to accommodate 200 to 250 students in the coming year.

Comments Chris Knight, "We have outstanding job placement assistance, with outreach to 1,300 Los Angeles businesses. We have graduates working at A&M, Ground Control, Capitol, NRG and numerous other studios. We also find lots of studios based around Pro Tools and Avid systems, so students with a good grasp of those can often get immediate jobs." Check out LARW at their website, http://village.ios.com/~larw/larw.htm. ■

L.A. news? Fax Maureen Droney at 818/346-3062.

—FROM PAGE 194, NY METRO

was expected to commence late last year with the console installation to be completed by February 1. "This completes the cycle for this [facility]," said Lou Gonzales, Quad's owner and a longtime fixture on New York's independent studio scene. "The addition of the 9000J brings the studio in line with what I think is the future of the technology." Gonzales is doing the acoustical redesign himself, and had not made a choice of new monitors for the control room at press time. Studio A was also slated to get another Studer 800 analog machine.

Power Station Recording has filed a multimillion-dollar lender liability lawsuit against Chemical Bank, alleging that the bank used deceptive practices in dealing with a $3 million loan taken out by the studio in 1992. According to studio founder Tony Bongiovi, Chemical attempted to force the studio toward an hourly and daily rental-based revenue approach, which Bongiovi said runs counter to the royalty-based revenue structure and philosophy that Power Station was founded upon. The loan, which includes a $500,000 line of credit, was taken out by Power Station to build and equip the studio's post production room, AV1. The loans were collateralized by the studio's building and business. In 1993, Power Station stopped making payments on the loan and implemented significant staff and budget reductions as part of a restructuring of its overhead that also saw the departure of co-founder Bob Walters. During the period, Power Station has had four studio management changes.

The filing of the lawsuit comes on heels of a Chapter 11 bankruptcy petition filed by Power Station in June, 1995, in which the studio sought to reorganize its finances to forestall any possible attempt at foreclosure by Chemical Bank. Chemical Bank responded to that by asking the bankruptcy court to place Power Station in Chapter 7, which would have forced liquidation of the studio and its equipment. Power Station successfully petitioned the court to remain in Chapter 11 and was planning to submit a reorganization plan to the court. Attorney Peter Gold, who had done legal work for Power Station in the past, was named as CEO of the studio in late 1995, a move approved by both Bongiovi and Chemical Bank.

The Museum of Sound Recording is slated to open late this year in a 2,500-square-foot loft space in Brooklyn's Park Slope section. The not-for-profit museum is the brainchild of Dan Gaydos, who supervises the sound and broadcast

Blues guitarist Kris Wiley tracked her debut at Paramount Recording Studios in Hollywood, CA. Standing in Studio C are (L to R) drummer Bruce Gary, bassist Eric C. Ajaye and Wiley. Seated are engineer Barry Conley and producer Guy Marshall.

departments at NYU's Film School and is the museum's president. (NYU's Film School has graduated a number of cinematic luminaries who have pushed the creative envelope of sound use in film, including Spike Lee, Jonathan Demme, Chris Columbus, Susan Seidelman and Oliver Stone.)

"The museum is very much a showcase of the history of sound," Gaydos told me. "Not just for film but for all sound media. But most importantly, it's a functional museum; everything here works, and you can hear the differences between systems from the '50s and systems from the '90s." The film aspect of the collection has some of the rarer items thus far, including a re-creation of Paramount's New York film mixing suite in the 1950s. A working Western Electric passive 20-input film sound console is there, donated by legendary mixer Walter Sear. Signal does not reach line anywhere in the amp-less console until the output stage. Other items include virtually the full line of Ampex mastering decks back to the model 300, an eight-track Scully deck from the old Aura Recording studio, a 24-channel ADM console from 1970, and the oldest item to date in the museum: a Webster Chicago wire recorder.

This museum's functionality sets it apart from the other static displays in other parts of the country. If you're interested in donating an appropriate piece of gear (functioning, of course), or in contributing time, money or a sense of history, call Dan Gaydos at 212/998-1663. ■

Dan Daley is Mix's East Coast editor. Fax pertinent news to 615/646-0102 or (preferably) e-mail to danwriter @aol.com.

▪ STUDIO SHOWCASE ▪

Sound/Mirror

76 Green Street
Jamaica Plain, MA 02130-2271
(617) 522-1412; Fax (617) 524-8377

We are a fully digital location recording, post-production and CD-mastering company specializing in classical and acoustic music. We do extensive field recording around the world and have been involved in complete recording projects for nearly every major classical label over the past 20 years. Full location recording with PCM-9000; post-production with Sonic Solutions, Lexicon Opus and Sony DAE-3000 and more. Your recording may be our next Grammy nominee.

The Looking Glass Studios

632 Broadway, 9th Floor
New York, NY 10012
(212) 353-2000; Fax (212) 353-2007

Located in the heart of Greenwich Village, The Looking Glass Studios offers a relaxing and efficient workspace, including a digital editing/premastering suite. Both studios feature comfortable control rooms with large sunny windows and a kitchen area and private lounge. Studio A is equipped with an SSL, a Neve 10-2 mixer w/1073 preamps, 48 tracks of analog and digital recording and 8 tracks of Pro Tools. With recently redesigned acoustics, it is an ideal room for either tracking or mixing.

Savebone Music Inc.

130 West 42nd Street, Suite 952
New York, NY 10036
(212) 997-0206; Fax (212) 997-0481

Recent projects feature former Rolling Stones guitarist Mick Taylor, Sasha, Carlos Alomar, Lenny Pickett, Robin Clark, Steve Ferrone, T.M. Stevens, Vivian Cherry, and Tawatha Agee. The engineer is Nenad Gracanin and the producer is Sasha. Studios feature SSL 4064, G Series Computer, Studer A827, Sony PCM 3324, Sony PCM 800's, state-of-the-art recording, mixdown and mastering. Highest possible quality is our main concern.

Pearl Records

Pearl Records Entertainment Group

4247 Walnut St., Ste. 100A
Kansas City, MO 64111
(816) 561-5151; Fax (816) 561-8441

Located in the heart of America—between the Westport area and the Country Club plaza, we are "New York" and "L.A." in the Midwest. We are a recording company with a 32-track completely digital recording studio with samplers, keyboards, drum machines and all you'll need for quality productions. Our engineers are musicians, performers and producers. At Pearl, we bring your music to reality!

MCA Music Media Studios

5161 Lankershim Blvd., Suite 201
North Hollywood, CA 91601
(818) 777-9200; Fax (818) 777-9235

Client-oriented mastering suite. Full 20-bit digital audio path with many flavors of down-conversion available. Many digital and analog music processors on site, featuring the dB Technologies AD122 A/D, TC Electronic M5000, vintage and modified Sontec Disk Mastering EQs, and GML EQ and dynamics processing. Mastering is Hafler Diablo powering Dynaudio M3 monitors through an in-house designed and constructed mastering console.

AVALON

Avalon Recording Studios Inc.

40-35 235th St.
Douglaston, NY 11363
(718) 224-9158; Fax (718) 224-5083

Located 28 minutes outside Manhattan in Douglaston Manor, Avalon is the viable professional alternative to the high-pressure environment of the city. Our unique sound is a mix of our vintage API console, Studer and Otari tape machines, and the great live spaces and control room designed by Frank Comentale. Our experienced musical staff brings it all together, making our primary focus your best creative performance. Brochure available.

▪ STUDIO SHOWCASE ▪

Mix-O-Lydian

144 Warbasse Junction Rd.
Lafayette, NJ 07848
(201) 300-0030

Mix-O-Lydian, one of New Jersey's premier studios for the past 20 years, has recently moved to new quarters on eight acres in Lafayette, N.J., one hour from NYC. The 4,000-sq.-ft. facility features a 104-input Amek Big console with Total Recall, a Studer 827, and Tascam DA-88 24-track. The studio also offers a large array of outboard gear and microphones, including 20 vintage Neve and Focusrite EQ/preamps. Overnight accommodations are available.

Soundhouse Recording

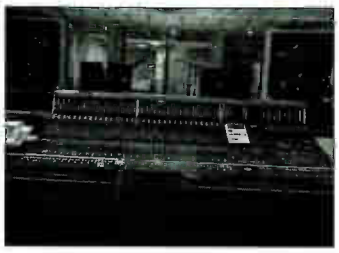
7023 15th Ave N.W.
Seattle, WA 98117-5502
(206) 784-4848; Fax: (206) 784-2604

Designed by Chips Davis and Frank Hubach Associates, Soundhouse is a cozy, built-from-the-ground-up, analog and digital recording facility. Home to a vintage 40-input Trident 80B, a Studer A827 24-track and the finest in outboard gear. The live room features hardwood floors and an impressive microphone collection. We have Nintendo, cable television, a barbecue and all the comforts of home.

Quad Recording Studios

723 7th Ave.; New York, NY 10019
(212) 730-1035; Fax (212) 730-1083

Quad Recording's four world-class Solid State Logic studios (up to 72 channels), two digital editing suites and two complete MIDI rooms are available for all your music recording needs, from pre-production to post-prodution. Artists who use our state-of-the-art facility include Aerosmith, Prince, David Sanborn, Janet Jackson, Elton John, Rolling Stones, Daryl Hall, Frankie Knuckles, David Byrne, Mariah Carey, B.B. King, Rosanne Cash, U2, Marc Cohn, SWV, Whitney Houston, Yoko Ono and David Morales.



EastSide Sound

98 Allen Street
New York, NY 10002
(212) 226-6365; Fax (212) 226-0788

EastSide Sound has been satisfying clients for 24 years. Our tracking room boasts a vintage Neve with David Manley tube modifications and Flying Faders. Our mixing room houses the Harrison Series Ten B—the ultimate in automation. Both rooms include Studer and Sony tape decks, a wide selection of both vintage and modern mics and outboard gear, as well as computer workstations. Located in Manhattan, private and very comfortable. Call for further information.

MusicLane Inc.

Specializing in compact disc and cassette mastering, digital editing

110 Konrad Crescent #6
Markham, Ontario L3R 9X2
(905) 479-7560; Fax (905) 477-0075

Located on the outskirts of Metro Toronto, MusicLane has been serving independent artists and major record labels for five years. Featuring two studios equipped with Sonic Solutions, Harmonia Mundi (Weiss Engineering), Sony, Studer, State-of-the-Art, and Stax gear. Full digital mastering services available, in 16- and 20-bit, to PCM 1630, DAT and CD-R from analog and digital sources. Contact Ted Carson for further information.

Laughing Dog Studios

80 Von Duzer St
Staten Island, NY 10301
(718) 720-9497; Fax (718) 448-7750

Located just 25 minutes from Manhattan in Staten Island, Laughing Dog Studios combines state-of-the-art equipment with an exceptionally talented staff to deliver the highest-quality final product. Equipment includes an 88-input Amek Big with SuperTrue Automation and Total Recall; three Alesis ADATs w/BRC; Pro Tools III Digital Editing; StudioVision; Lexicon 300, Eventide H3000SE; cool tube gear; Neumann, AKG, Sennheiser and Shure mics; four isolated rooms, kitchen, lounge & ample parking!

▪ STUDIO SHOWCASE ▪

Rockingchair Recording Studios

1711 Poplar Ave.
Memphis, TN 38104
(901) 276-8542; Fax (901) 276-8546

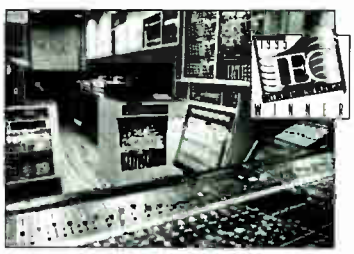
Comfort is very important to an artist's creativity. Rockingchair Recording offers a relaxing environment and personalized service that set us apart. Special attention was given to the aesthetics and location of our studio in order to establish the perfect atmosphere for our clientele. We are located in the heart of midtown Memphis, just minutes away from historical Beale Street, clubs, restaurants and hotels. Together, Rockingchair and Memphis make a perfect retreat for today's recording artist.

Studio Piccolo

Studio Piccolo

1977 Lepailleur
Montreal, QC H1L 6E4
(514) 351-0009; Fax (514) 351-2891
E-mail: draga@odyssee.net

Studio Piccolo, situated 15 minutes from downtown Montreal, is a studio with all the comfort and space needed to let the creative juices flow. Having recently relocated to a larger space, Studio Piccolo makes the ideal tracking facility. Complete with a huge live room and control room, as well as several iso booths, Piccolo offers a Studer A80 2-inch with 24-track Dolby SR, Studer A827 ½-inch, 32-track ADAT with BRC, 16-track Pro Tools and Optifile automation. Keyboards, sound modules, samplers, guitar amps and baby grand piano are also available.



Record Plant Remote

109 Pinecliff Lake Dr.
West Milford, NJ 07480
(201) 728-8114; Fax (201) 728-8017

Record Plant Remote has been an industry leader in location recording for over 20 years. We've kept abreast of new developments in audio technology without sacrificing our sonic integrity. Some of our recent clients include: MTV, Aerosmith, Elton John, Michael Bolton, Spin Doctors, R.E.M., Live, Meatloaf, Wynton Marsalis, John Mellencamp, Keith Richards, Chuck Berry, Guns N' Roses, Whitney Houston, Pavarotti, INXS, James Taylor, Emmylou Harris, Shawn Colvin, Billy Ray Cyrus, Mary Chapin Carpenter, Trisha Yearwood and Harry Connick Jr. Our reputation speaks for itself!

Crescent Moon Studios

great staff, great vibe

great weather

Great Studio

CRESCENT MOON
studios

SSL8000G+W/ULTIMATION • NEVE VR-60 FLYING FADERS • SONY 3348 • STUDER A827
DOLBY SR • QUESTED • GENELEC • SONIC SOLUTIONS • APOGEE • SONY 7030 • EDNET

6205 BIRD ROAD, MIAMI, FL 33155 (305) 663-8924 FAX (305) 665-0412

—FROM PAGE 160, SYMETRIX 620

Once you reach the final stage of a product, then the noise-shaping algorithm is best.

Over a period of months, I used the 620 as a front end to my DAT machines, workstations and the Rane Paqrat (reviewed in this issue). The 620 provides an obvious, discernible improvement over the internal converters of any DAT machine on the market. Team the 620 up with Digidesign's low-cost AudioMedia card, and you have a 20-bit editing workstation at a cost that cannot be met by any other system. Yow!

Incorporating some 20-bit technology into your production tool kit can give you a definite edge on the competition.

Other than a minor snag with S/PDIF cable interfacing, the Symetrix 620 is a winner, offering top-notch audio performance that retains the sparkle, transparency and punch of your audio creations through that difficult and critical transition from sine wave to binary code. At $995, it offers a lot and is priced right.

Note: Symetrix has recently released Product Demos—Volume One, a CD that allows users to hear the difference between noise-shaped 20- to 16-bit and standard 16-bit signals. Call Symetrix for a free copy.

Symetrix, 14926 35th Avenue West, Lynwood, WA 98037; 206/787-3222; fax: 206/787-3211. ■

—FROM PAGE 32, PERSONAL TO PUBLIC

tionable hygiene are poring through your kids' books in the living room.

Then there's all the daily chores a commercial studio has to do that you expressly built your studio to *avoid*: reconfiguring the place every few hours for each new client, resetting the console and all the effects, and even just cleaning up after yourself. Having your own studio is like having an eternal lockout session—people pay a premium for lockouts, and there's a reason. If the studio has to be cleared and normaled every time a client comes in, with the coffee cups and other substance-related paraphernalia put away, the floor swept, gum wads removed from chairs, mic stands folded, and track sheets filed, then the next time *you* get the urge and sit down to do your own thing, it's going to take awhile to get the place back to where you want it. And I guarantee that large parts of your creative momentum will be lost. How many interviews have you read with rock stars who said, "Yeah, well, after we built my dream studio in the carriage house, we started booking it out, just to pay for the new desk, you know, and now I can't get in it but once a month, so we're back recording in London"?

And, of course, there's going to be competition, which is going to be quite different from the sort you're used to. If your personal studio doesn't have the latest sounds on hand, you can usually buy a synth or effects module or two and move back to the front of the line, as far as your clients are concerned. But once you go commercial, you're going to have to play catch-up with every kid in town who has the bucks for a digital 8-track. There's a huge amount of "flavor-of-the-month" nonsense in marketing a studio; if you think advertising- or multimedia-types make demands that are far beyond their ability to know what they're talking about, wait 'til you deal with local bands. "You mean, your multitrack deck doesn't have super-fast SMPTE lockup?" they'll ask. "That's not cool. We have to have that!" And you protest in vain about the fact that their cutting grunge rock live to tape makes SMPTE lockup time utterly irrelevant. Maybe you know the gain staging of your mixer like the back of your hand, but that won't help you with that large number of potential clients who won't come near you if you're not using the brand that they've seen in all the magazines.

There's always going to be someone else in town who has newer and ostensibly hipper gear. The continuing improvement in the quality of low-priced gear unfortunately works against anyone who's already made an investment—the new place down the block with the same budget you had five years ago can offer a more attractive package. You can't charge less, because that would make you unprofitable, but you can't afford to replace all your hardware overnight either.

Finally, the whole mindset required to run a studio for others is very different from selling your own finished product. It seems to me that the motivation for putting together a studio for your own use in the first place is utterly antagonistic to the attitude that makes it possible to run a successful business in which you're constantly dealing with the public. The former is to have the freedom to work at your own pace, on projects that are important to you. The latter is to get as many people through as quickly as possible, doing stuff that means little or nothing to you. They just don't mesh. The only exception I can think of is someone whose motivation on *both* counts is to make lots of money—in which case, you're probably in the wrong field, anyway.

Now, I'll be the first to admit that some people can make this work. Some folks really can control their artistic temperament and split themselves into two beings—one devoted to art and the other to commerce—who don't constantly squabble among themselves. There are also a number of musicians who build studios for themselves and then find out that they're better at running the studio than making music, and happily change goals. But for most who think they can recoup the megabucks spent on a personal pleasuredome by selling time to others, I offer this advice: Don't count on others to help you make back your investment. Spend only what you can afford to support with your own work, or what you're willing to sacrifice. And before you commit to spending more money than you can justify, learn to use what you have to its fullest potential—you may be surprised how much better it can be. In a personal studio, you want to be true to your own selfish muse; don't give away the store just to pay for the display cases. ■

Paul D. Lehrman is designing his next personal studio to be virtual: no tape, no console, no keyboards. He figures the hard part will be finding virtual clients.

AD INDEX & READER SERVICE PAGE

PAGE	READER SERVICE NUMBER	ADVERTISER
27	001	Absolute Audio
40	002	Acoustical Solutions
189	003	Acoustic Sciences Corporation (ASC)
14-15	004	Akai
IFC	005	Alesis (BRC)
42-43	006	Alesis (ADAT)
151	007	Alesis (Q2)
9	091	Ampex
182	008	AMP Services
105	009	Anthony DeMaria Labs
17	010	Aphex Systems
101	011	Apogee Electronics
157	012	AudioForce
100	013	Audiomation Systems
107	014	Audio-Technica
143	015	Avid Technology
76	016	Azden
25	017	BAG END Loudspeakers
144-145	018	B & H Photo-Video
129	019	BASF
67	020	beyerdynamic
95	021	Burlington A/V Recording Media
127	022	Carver
13	023	Corel Corporation
206	024	Crescent Moon Studios
176	025	Crest Audio
54	026	CTI Audio
77	027	D & R USA
141	028	Dale Electronics
6-7	029	dbx Professional Products
186	030	DGS Pro Audio
10-11	-	Digidesign
78-79	-	Digidesign #2
37	031	DigiTech
70	032	Disc Makers
26	033	Dolby
68	034	Dorrough Electronics
52-53	035	Duracell USA
189	036	EAR Professional Audio/Video
70	037	Earthworks
167	038	Electro-Voice (EV)
93	039	E-mu Systems
110	040	Euphonix
131	041	Europadisk
61	042	Event Electronics
102	043	Fairlight
51	044	Focusrite
122	045	Fostex
142	046	Full Sail Center for the Recording Arts
96	047	G. Prime
64/65	048	Gand Music & Sound Insert
64	049	Garwood Communications
174	050	Gefen Systems
188	051	Grandma's Music & Sound
134	052	Groove Tubes Audio
146	053	Hafler
117	054	Harris Allied
80	055	HHB Communications Ltd.
181	056	HHB Communications Ltd. #2
82	057	The Hollywood Edge
201	058	IIR Exhibitions Pte. Ltd.
197	059	Illbruck
139	060	Institute of Audio Research
BC	-	JBL Professional
156	061	JRF/NXT Generation
133	062	Kaba
69	063	Kurzweil Music Systems
202	064	L & M Music
200	065	Leo's Professional Audio
135	066	Lexicon
138	067	LinearX
173	-	Los Angeles Recording Workshop
191	068	MacBEAT
48-49	069	Mackie (SR24·4)
IBC	070	Mackie (1202-VLZ)
165	071	Manhattan Production Music
40	072	Manley Laboratories
200	073	Markertek Video Supply
172	074	The Microphone Company
183	075	Micro Technology Unlimited (MTU)
203	076	Mix Bookshelf
154	-	Mix Web Site
71	077	Mobile Fidelity Sound Lab
32	078	Musicam/CCS Audio Products
171	-	N.A.R.A.S.
34-35	079	Neumann/USA
156	080	NOW! Recording Systems
86	081	Otari
117	082	Pacific Coast Sound Works
38-39	083	Peavey Electronics (ADDVERB)
62-63	084	Peavey Electronics (Q Family)
159	085	Peavey Electronics (PVM T9000)
91	086	Pinnacle Micro
182	087	Polyline
108	088	Pro Sound & Stage Lighting
172	089	QCA
114	090	QSC Audio Products
133	092	Quintessential Sound
185	093	Rane
97	094	The Recording Workshop
174	095	Rhythm City
199	096	Rich Music
97	097	Rocket Lab
165	098	Rock 'n Rhythm
41	099	Roland
109	100	Rorke Data
130	101	RPG Diffusor Systems
83	102	RSP Technologies
175	103	Sabine
108	104	SAE Digital Mastering
197	105	Sam Ash Parts
55	106	Sam Ash Professional
92	107	Samick Industries
191	108	SAS Industries
47	109	Sennheiser
50	110	Shure
1	-	Solid State Logic (SSL)
94	111	Sonic Foundry
18-19	-	Sony
72-73	-	Sony #2
66	112	Sound Ideas
134	113	Speir Music
21	114	Spirit
161	115	SPL
3	116	Studer Professional Audio Equipment
28-29	117	Studio Audio Digital Equipment (SADiE)
186	118	Studio Consultants
187	119	Studio Techniques
33	120	Sweetwater Sound
125	121	Symetrix
2	122	Tannoy
22-23	123	Tascam
31	124	t.c. electronic
173	125	Thoroughbred Music
162	126	3M Corporation
65	127	TL Audio/Sascom Marketing
111	128	The Toy Specialists
126	129	Troisi Digital Companion
112	130	Tube Works
119	131	21st Century Media
106	132	Uncle's Stereo
157	133	VacRac/AXI
24	134	Vestax Musical Electronics
190	135	Walters-Storyk Design Group
190	136	West L.A. Music
113	137	Whirlwind
199	138	Whisper Room
202	139	World Records
56-57	140	Yamaha

MARKETPLACE

GET IT FAST

Don't trust your audiophile cassette duplication needs to anyone else!

Progressive Music

Avail: VISA & Master Card

2116 Southview Ave.
Tampa, FL 33606
(813) 251-8093
FAX: (813) 251-6050
Toll Free: (800) 421-TAPE

All Complete:
4-Color Packages, Typeset, Film, Chrome Tape, from DAT

500 CD's + 500 Cass	$2290
1000 CD's + 500 Cass	$2865
500 CD's	$1465
500 Cass	$825

We have the "Fastest Turn-Around in the Known Universe!"

The ADAT Exchange

A Service of Hi-Tech Audio.

Upgrade to the outstanding new Alesis Adat XT with our generous trade-in program. We also offer used Adats with a 30 day warranty, in addition to a complete line of professional audio equipment for purchase or rent.

☎ (415) **742-9166**
Reducing audio stress since 1983.

HI-TECH AUDIO

CDs and CASSETTES FACTORY DIRECT!!

Why Trust Your Production to an Ordinary Duplicator or Replicator, When You Can Get the **Finest Quality and Professional Service** at a Fraction Of The Cost with C&C Music.

You'll Hear and Feel the Difference

800-289-9155

- FREE CATALOG
- 3 WEEK DELIVERY
- WORLD CLASS QUALITY
- FREE GRAPHIC DESIGN
- CALL FOR QUOTE
- NO COME-ONS

C&C MUSIC

CPI is a full-service replication house, offering the highest quality CASSETTES and COMPACT DISCS at reasonable prices. We offer complete packaging services including artwork, printing and assembly.

CDs! Cassettes! CD-ROMs!

TO FIND OUT MORE ABOUT OUR GREAT PACKAGES AND PRICING CALL TODAY!

1-800-889-0552

CPI

Sound Business for Over 40 Years

REPLICATION • DIGITAL MASTERING • CASSETTES • CDS • PACKAGING

NOW! YOU CAN CHOOSE!

TDK PRO SA BULK

CUSTOM LOADED HIGH BIAS (TYPE II) CASSETTES

UNLABELLED AND UNBOXED • MICHELEX CLEAR 5-SCREW SHELLS • CUSTOM LENGTHS AVAILABLE

Length	C-10	C-20	C-30	C-40	C-45	C-50	C-60	C-70	C-80	C-90
Price	$0.31	$0.37	$0.44	$0.49	$0.50	$0.53	$0.61	$0.68	$0.75	$0.82

MAXELL XLII BULK

CUSTOM LOADED CHROME HIGH BIAS (TYPE II) CASSETTES

UNLABELLED AND UNBOXED • MICHELEX CLEAR 5-SCREW SHELLS • CUSTOM LENGTHS AVAILABLE

Length	C-10	C-20	C-30	C-40	C-45	C-50	C-60	C-70	C-80	C-90
Price	$0.32	$0.37	$0.42	$0.52	$0.54	$0.56	$0.61	$0.73	$0.78	$0.83

PREMIUM ROUNDED-EDGE ALL CLEAR NORELCO BOXES ➤ $0.13 each

10 up or 12 up Cassette Label for Laser/Ink Jet Printers $0.30 per Sheet (white)
$0.36 per Sheet (color-call for selection) Cassette Insert Cards (J-Cards)
6 up $0.30 per Sheet (white) $0.36 per Sheet (color)

CALL FOR FREE FULL LINE A/V CATALOG

$25 MINIMUM PRODUCT ORDER (Shipping charges extra)

NOW! RECORDING SYSTEMS, INC.

32 WEST 39TH STREET, 9TH FLOOR, NEW YORK, NY 10018

Telephone: 212-768-7800 • 800-859-3579 • Fax 212-768-9740

MASTER DISTRIBUTORS of:
3M • AMPEX • BASF • DENON • DIC • FUJI • MAXELL • SONY • TDK • TELEX
AND MUCH, MUCH, MORE . . .

We Accept VISA - MasterCard - American Express or UPS COD Cash Only

Effortless Control!

Get in control of your microphones with the **IR-1 Automatic Mic Switch from D³**. Give your mute the boot, and eliminate gates with the simple to use, dependable, 100% analog **IR-1**. Ideal for the Concert Stage, Houses of Worship, Convention Centers & Studios. Get an **IR-1** today and let it add control to your mic's.

[illegible] Damon Johnson - Brother Cane
[illegible] David Anderson - Brother Cane
[illegible] Jim Yakabuski - FOH - Van Halen
[illegible] Jerry Harvey - MON - Van Halen
[illegible] Mark Frink - Mix Magazine - 94 AES Report
[illegible] Johnny Leos - FOH - Jo El Sonnier
[illegible] Jo El Sonnier
[illegible] Eddie Money

D³, Inc.

For the D³ Dealer in your area or for more information call toll-free: 1 (800) 701-7899
Outside US Call (408) 745 7899 Fax (408) 745-7897
D3, Inc 1012 Morse Ave St 19 Sunnyvale, CA 94089

You Work the Audience... We'll Work the Mic!

Anchor Your Speakers with Sound Anchor Stands

Your system will perform to its potential when you get your monitors off of the meter bridge, properly positioned and supported.

• STABLE • RIGID • • DAMPED •

SOUND ANCHORS

Sound Anchors Inc.
(407) 724-1237

ADJUSTABLE MONITOR STAND

Design, Print and Apply CD Labels for $79[95]

That's NEATO!

PATENT PENDING

ORDER NOW! **FREE** 100 LABELS

NEATO™ CD LABELER KIT

1. Create your own artwork *On Your Computer* with easy-to-use NEATO Templates
2. Print on *Any Laser Printer* using NEATO pressure sensitive die-cut labels.
3. Using the NEATO Label Device, apply labels *PERFECTLY EVERY TIME!*

KIT INCLUDES • Label Design Templates (PC & Mac) • The Amazing Neato Labeler • Complete Instruction Guide

800-648-6787

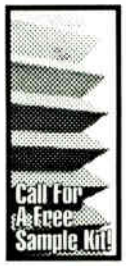
OR WRITE **MicroPatent®**
250 Dodge Ave. • East Haven, CT 06512

CLASSIFIEDS

MIX Classified Ads are the easiest and most economical means to reach a buyer for your product or service. The classified pages of Mix supply our readers with a valuable shopping marketplace. We suggest you buy wisely: mail-order consumers have rights, and sellers must comply with the Federal Trade Commission, as well as various state laws. Mix shall not be liable for the contents of advertisements. For complete information on prices and deadlines, call (800) 544-5530.

Acoustic Consulting

Good Gear In A Bad Sounding Room Sounds No Better Than Bad Gear.



STUDIOFOAM SOUND ABSORBENT WEDGES

There's no easier or more affordable way to make your room & mixes sound better— period. No other foam line beats our absorbency, flame retardancy, color selection, longevity, speedy delivery...*or prices*. Now with free freight! We also sell great sound barriers & much more. **NEW! ACOUSTICS 101**, an easy-to-understand guide that gives real-world advice about how to build a sound studio or turn your place into one. Learn how to float floors, soundproof walls, choose the proper doors & more. You won't find better bottom-line advice anywhere else! **Just $11.95** incl. postage. Order your copy today!

Users: AT&T • NASA • Sony • Shure • Ford • Kodak • Warner Bros. • 20th Cent. Fox • Universal Studios • Maury Povich Show • Hitachi • Toshiba • Dennis DeYoung (Styx) • Baldwin • Editel • Mike Wanchic (J. Mellencamp) • Rockwell • US Gov't • Opryland • Dominic Guss (Stevie Nicks, The Outfield, Kurzweil) • Guido Welsh (TBN, WalMart) • Carvin • WhisperRoom • Pat Duke (Voice of McDonalds & Miller Brewing) • Martin Marietta • Manley Labs • NJJ (NFL on Fox, Coke) • D. Ervasti (Voice of NFL on Fox)

USAFoam • 11571 E. 126th, Fishers IN 46038 • (800) 95-WEDGE • Fax (317) 842-2760

STUDIO DESIGN
CONTROL ROOMS & STUDIOS
SYSTEMS • TURNKEY PROJECTS
ARCHITECTURAL ACOUSTICS
ROSATI ACOUSTICS
INNOVATIVE DESIGN & CONSULTING
18 YEARS • BOSTON, MA
617-423-5546 • 800-423-5505

SILENT SOURCE
58 Nonotuck St., Northampton, MA 01060
Your Source for Acoustical Products
BEST PRICES-NATIONAL DELIVERY
800-484-1003 ext. 0032
MC VISA Accepted

Mix Classifieds **(800) 544-5530**

Business Opportunities

LET THE GOVERNMENT FINANCE your new or existing small business. Grants/loans to $800,000. Free recorded message: (707) 448-0270 (NL3).

Employment Offered

The U.S. Coast Guard Band, CDR Lewis J. Buckley, Director, announces a vacancy for **AUDIO ENGINEER** (Live sound & recording). Starting salary between $23,784-$26,364, full military benefits, 30 days annual vacation, pension plan, and no recruit training. Maximum age at time of enlistment is 34. Send resume prior to April 1,1996 to:
Chief Musician E. Anthony Gibbs
U.S. Coast Guard Band
U.S. Coast Guard Academy (pb)
15 Mohegan Ave.
New London, CT 06320
or call: **(203) 444-8467** (the area code is soon changing to 860)
Fax: (203) 444-8475

ADVERTISING SALES-MIX
Advertising Sales Mgr. wanted for N.W./N. Central U.S. Min. 2 yrs sales experience req. Position located in Emeryville, CA. Work for the industry leader! EOE. Send letter & resume to MIX, Attn. Associate Publisher, P.O. Box 8852, Emeryville, CA 94608. No phone calls please.

Full-time senior tech position for Midwest multi-room facility. Growing company, excellent salary and benefits. Moving allowance. We are looking for an experienced technical director to maintain our facilities in top condition. Mixing experience would also be helpful. For a full job-description please fax resume to (312) 335-1979.

Recording Engineer Radio Announcer
ON THE JOB TRAINING
IN MAJOR LOCAL RECORDING STUDIOS/RADIO STATIONS
Part time, nights, weekends. No experience required. Free brochure and recording tells how.
1-800-295-4433
http://www.sna.com/musicbiz

Equipment for Sale

TUBE MICS
Neumann, AKG, Telefunken
BOUGHT/SOLD/SERVICED
Power supplies for most tube mics.
Bill Bradley Microphones
Visa/M.C. accepted
(216) 723-6494
Fax: (216) 723-6595

For a *FREE* sample and brochure call 800-829-4275

Durable Velcro Straps for wrapping Cables & Cords of all kinds.
Cable Lock
Giving organization a Good Wrap

THE N90
A HIGH QUALITY NATURAL SOUNDING DYNAMIC STUDIO MIC
STEDMAN
CORPORATION
SEE OUR AD IN MARKETPLACE pg. 210

The Studio POP Filter
A Great Improvement on a good Idea!

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

- Standard mic stand adaptor with threaded brass insert
- Improved new double screen

Only $24.00 with optional clamp and Gooseneck $44.95 plus shipping
ONE YEAR GUARANTEE

AUDIO VISUAL ASSISTANCE
565 SHERWOOD ROAD, SHOREWOOD, MN 55126
PHONE/FAX: 612-481-9715

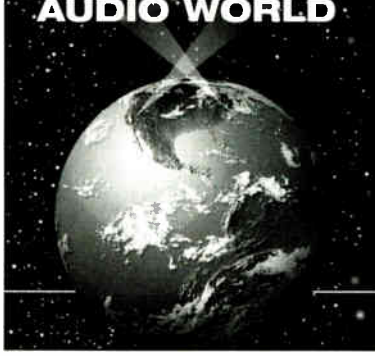
Good Sound is the Absence of Bad Sound
Klay Anderson Audio Inc.
PRO AUDIO SALES AND SERVICES
THE AUDIO SOURCE FOR 27 YEARS
Call **1-800-FOR-KLAY**

CAD Maxcon II D-frame 56 inline channels, 120 input mix. Audiophile quality (see Nile Rodgers, 5/92 MIX). 32-channel inboard fade, mute, group & gate automation. TT patchbay, Z-stand, snakes, 2 yrs new-mint! $32.5k. (305) 945-1728.

OMNIRAX
STUDIO FURNITURE for the discriminating musician

800-332-3393
P.O. BOX 1792 SAUSALITO, CA 94966

AUDIO WORLD



Specializing in New, Used & Vintage Gear
MICROPHONES
PREAMPS
COMPRESSORS
CONSOLES
RECORDERS
& MORE!
Authorized Dealers for Anthony DeMaria Labs
We Rack Modules
We Buy Gear
"Best Gear On Earth"
Call or Fax
Sales: (818) 884-8400 or (310) 275-4277
Fax: (818) 340-4331

SONY

SONY SALE! PRO AUDIO SONY SALE!

Sony Pro Audio has a limited number of new, used, refurbished, discontinued and overstock items in inventory priced for quick sale! And, most include a 90-day labor, 1-year parts limited warranty! All orders are on a first-come, first-serve basis. This inventory will be available for a very limited time.

For more information, call Clayton Blick at **201-358-4197, ext. MIX**.

MODEL	DESCRIPTION	SUGG. LIST PRICE	SALE PRICE
CD MASTERING PRODUCTS			
DABK-1630	PCM-1630 Read-After-Write Board	$2,325.00	$1,750.00
DABK-1631	PCM-1630 Digital I/O Board	$3,000.00	$2,250.00
DABK-3001	DAE-3000 Interface Board for DMR-4000	$3,150.00	$1,150.00
DABK-3002	DAE-3000 Interface Board for PCM-3402	$3,150.00	$575.00
DABK-3003	DAE-3000 Interface Board for PCM-3324	$4,650.00	$850.00
DABK-3005	DAE-3000 Interface Board for PCM-7030	$3,150.00	$1,000.00
DAE-3000	Digital Audio Editor	$40,200.00	$11,795.00
DFX-2400	Sampling Rate Converter	$12,505.00	$3,375.00
DMR-4000	Digital Master Recorder for PCM-1630	$24,200.00	$19,350.00
DMU-30	2 Channel Digital Remote Meter Unit	$3,425.00	$925.00
DTA-2000	Digital Tape Analyzer	$4,725.00	$3,550.00
PCM-1630	2 Channel Digital Audio Processor	$29,300.00	$21,975.00
PE-1000	Printer Paper for DAQ-1000	$11.00	$5.00
SDP-1000	Digital Audio Effector	$27,405.00	$4,850.00
DASH DIGITAL MULTITRACK RECORDER PRODUCTS			
CY-24A	Tape Splice Block	$212.00	$95.00
DABK-3341	Upgrade Kit for PCM-3348	$10,815.00	$5,000.00
TIME CODE DAT PRODUCTS			
DABK-7030	Time Code Card for PCM-7030/7050	$1,650.00	$350.00
DABK-7031	Digital I/O Card for PCM-7030	$550.00	$135.00
DABK-7032	Memory Start Card for PCM-7030	$1,100.00	$250.00
DABK-7033	RS-232C Interface for PCM-7030/7050	$550.00	$135.00
DABK-7055	Edit Memory Card for PCM-7050	$1,650.00	$395.00
RM-D7300	Editing Controller for PCM-7050/7030	$4,950.00	$1,200.00
CD CHANGERS			
CDK-006	60 Disc CD Changer - Proprietary Interface	$3,715.00	$750.00
APR-24 ANALOG RECORDER PRODUCTS			
APR-OP24C	Console Rec Ready I/F for APR-24 Recorder	$420.00	$100.00
RKA-24F	Spare Parts Kit for APR-24 Recorder	$455.00	$100.00
MXP-2000/2900 SERIES ANALOG CONSOLE PRODUCTS			
ACP-2000A	Power Supply for MXP-2000/2900 Series	$1,030.00	$250.00
KN-2916S	Solder Type Connector Kit for MXP-2916	$390.00	$95.00
KN-2926C	Crimp Type Connector Kit for MXP-2926	$595.00	$195.00
KN-2926S	Solder Type Connector Kit for MXP-2926	$535.00	$130.00
MXBK-2001E	Mono Input Module for MXP-2000 Series	$780.00	$195.00
MXBK-2003	Dynamics Module for MXP-2000 Series	$1,400.00	$350.00
MXBK-2004E	Stereo Line Input Module for MXP-2000 Series	$900.00	$225.00
MXBK-2005	Master Module for MXP-2000 Series	$950.00	$225.00
MXBK-2006	Monitor Module for MXP-2000 Series	$880.00	$225.00
MXBK-2007	Communications Module for MXP-2000 Series	$830.00	$225.00
MXBK-2008	Blank Panel for MXP-2000 Series	$20.00	$10.00
MXBK-2900	Blank Panel for MXP-2900 Series	$31.00	$10.00
MXBK-2901E	Mono Input Module for MXP-2900 Series	$875.00	$225.00
MXBK-2902	Group Module for MXP-2900 Series	$850.00	$225.00
MXBK-2903	Dynamics Module for MXP-2900 Series	$1,495.00	$350.00
MXBK-2906	Monitor Module for MXP-2900 Series	$925.00	$225.00
MXBK-2908	Master Module for MXP-2900 Series	$980.00	$225.00
MXBK-2909E	Stereo Line In w/o EQ for MXP-2900 Series	$875.00	$225.00
MXBK-2917	Communications Module for MXP-2900 Series	$865.00	$225.00
MXBK-EI21	Parallel Editor Interface for MXP-2000/2900 Series	$535.00	$125.00
MXBK-LI21	Transformer Line Input Card for MXP-2000 Series	$60.00	$25.00
MXBK-LI22	Line Input Card for MXP-2000 Series	$60.00	$25.00
MXBK-LI23	Transformer Line Input Card for MXP-2900 Series	$62.00	$25.00
MXBK-MI21	Transformer Mic Input Card for MXP-2000 Series	$60.00	$25.00
MXBK-MI22	Transformerless Mic Input Card for MXP-2000 Series	$60.00	$25.00
MXBK-MI23	Transformer Mic Input Card for MXP-2900 Series	$62.00	$25.00
MXBK-MI24	Mic Input Card for MXP-2900 Series	$62.00	$25.00
MXBK-RL21	Reverse Talkback Option for MXP-2000 Series	$60.00	$20.00
MXP-3000 SERIES ANALOG CONSOLE PRODUCTS			
ACP-3000	Console Power Supply	$2,500.00	$800.00
ACP-3100	Power Supply for Automation System	$925.00	$250.00
ACP-3200	Console Power Supply for MXP-3036VF	$1,500.00	$400.00
ACP-3300	Power Supply for Automation System	$1,200.00	$250.00
MXBK-3000	Blank Panel - I/O Module	$27.00	$10.00
MXBK-3001E	I/O Module	$440.00	$150.00
MXBK-3002E	Transformer Coupled I/O Module	$500.00	$150.00
MXBK-3004	Stereo Module	$925.00	$250.00
MXBK-3101	Manual Fader Module	$145.00	$50.00
MXBK-3102	Automated Fader Module for MXP-3036	$215.00	$75.00
MXBK-3103	Automated Fader Module for MXP-3056VF	$215.00	$75.00
MXBK-3104	Manual Fader for MXBK-3004 Stereo Module	$170.00	$50.00
MXBK-EQ30	Blank Panel - EQ Module	$18.00	$10.00
MXBK-EQ31	Fixed Q EQ Module	$220.00	$60.00
MXBK-EQ32	Variable Q EQ Module	$235.00	$95.00
MXBK-EQ33	State Variable EQ Module	$210.00	$95.00
MXBK-EQ34	L.C. Fixed Q EQ Module	$305.00	$100.00
MXBK-EQ35	10 Band Graphic EQ Module	$495.00	$125.00
MXBK-LI32	Dual Transformerless Line Input Card	$70.00	$25.00
MXBK-MI30	Blank Panel - Mic Pre Module	$11.00	$5.00
MXBK-MI31	Single Transformerless Mic Input Card	$65.00	$25.00
MXBK-MI32	Dual Transformerless Mic Input Card	$160.00	$45.00
MXBK-MI34	Dual Transformer Coupled Mic Input Card	$305.00	$90.00
MXBK-VCA31	VCA Module for Automation	$155.00	$25.00
MXP-OP3010	CAF-3000 Fader Automation System	$3,000.00	$500.00
RKA-3001F	CAF-3000 Automation Spare Parts Kit	$200.00	$50.00

Equipment for Sale

PAE Audio
Quality Vintage Gear
NEVE PARTS AND REPAIRS
516-674-4939

tired of tape-based automation ??
interested in a low-cost alternative ??
convert tape based automation to MIDI automation with the
ARMS II to MIDI-CONVERTER

only $1495.00
30 day money back guarantee
store automation on any sequencer and unleash the power of
disk-based computer automation
works with MCI, HARRISON, and SOUND WORKSHOP consoles
from DSL ELECTRONICS 214/869-1122 fax 214/869-1135

Pro-Audio Equipment
Sales & Rentals
Comprehensive selection, dependable service, honest advice. (415) 742-9166
Hi-Tech Audio

SEE OUR AD IN MARKETPLACE pg. 211

Sonic Boom
German Specialist V man:
The 72 is what we do!
for info call now
phone (415) 642-8586
fax (415) 642-8589

Private Studio Liquidation Sale
Great deals on warranted equipment, less than 1-year old. 16-track Spectral digital workstation, asking $18k; and tons of mics, stands, effects, amps, cables, monitors.
Phone (813) 747-2282
Fax (813) 748-8436
Compuserve: 70662.3050

SOUTHERN CALIFORNIA PRO AUDIO
NEW, USED AND VINTAGE
THE LAST CALL
YOU'LL HAVE TO MAKE!
Phone: (818) 222-4522
Fax: (818) 222-2248

Apogee Electronics has a number of remanufactured **AD-500E** stereo 18-Bit Analog to Digital converters we have taken in on trade. We are offering these units at a special price of $1,495 with a one year warranty.
APOGEE ELECTRONICS
Phone: (310) 915-1000
FAX: (310) 391-6262

Digital Questions?
Call the Professionals!
Specializing in Digital Audio Workstations

- All Major Product Lines
- Mixing Consoles
- Recorders•DAW'S
- Amplifiers•Preamps
- Microphones
- Processing

- Sales
- Design
- Consultation
- Installation
- Service

Communication Task Group, Inc.
800•367•2844
Major Credit Cards Accepted

FOR SALE: Ampex ATR-102 with 1/4", 2-track heads. Excellent shape. Can be retrofitted for 1/2", 2-track. $4,750.
(212) 206-8561

CAD MAXCON-II console, 24-channel with Audio Upgrades modifications (high-speed mic pres and EQ). Extremely transparent sound quality. Excell cond. $9,000. (619) 481-6184.

Consoles: Neve 16x4x2, 10x2, 8x2 • Telefunken U48 (original, mint) • U48 (modified) • RCA 74-B • '62 Strat • Mitsubishi X86 • Aphex B exciter • Rockman Sustainer/Chorus/Delay. (804) 464-4924, Windmark Recording

MARQUETTE AUDIO LABS
*** RECORDING EQUIPMENT ***
V-72, V-76, NEVE, AUDIX, LANGEVIN,
MICS, PREAMPS, COMP/LMTRS + MORE
CUSTOM RACKING OF VINTAGE GEAR
phone/fax (510) 264-1144 10 to 10 pst

DAN ALEXANDER AUDIO
BUYS, SELLS AND REPAIRS
RECORDING EQUIPMENT.
(415) 546-0200
FAX (415) 546-9411

MCI 24-Tk, Prisma DAW
MCI JH-114 24-track 2" analog machine. Kept in top shape, comes w/spare cards, cables; $8.5k. Also NEW Prisma DAW, w/2 gig Barracuda SCSI, adda, connecting cables, $5k. Call Steve at (804) 547-4000.

ADAT UPGRADES—
MIC MODS
Component-level upgrades for mixing consoles, tape machines, mics and all outboard gear. Also, high-speed, high-quality mic preamps.
AUDIO UPGRADES
6410 Matilija Ave.
Van Nuys, CA 91401
(818) 780-1222
Fax (818) 346-2308

LFCI
EQUIPMENT FINANCING
Direct Lenders
LEASE & CREDIT LINE AVAILABLE
NO DOWN PAYMENT
NEW & USED EQUIPMENT
100% FINANCING
APPLICATION ONLY UP TO $50,000
(NO FINANCIALS)
90 DAYS - NO PAYMENT
OVER 15 YEARS A/V EXPERIENCE
Audio-Video is our only business
800 626-LFCI

FACTORY DIRECT CASES
OUR PRICES CAN'T BE BEAT
Custom or stock sizes
Call for catalog or quote
(800) 645-1707
In NY (516) 563-1181
Fax (516) 563-1390
Roadie Products Inc.

AMEK "Big by Langley" console, $27,500. Total recall, full automation, 44 mono and 4 stereo modules for 104 inputs in mixdown, with custom TT patchbay. (615) 781-9973.

96-point, TT-balanced patchbays. Switchcraft D1634B. Not the cheaper imitations. For a limited time, available at AVR for $257 (Cash price only). Quantity pricing upon request. Call (617) 924-0660.

Marantz CDR 610 CD recorder like new cond. $3,900. Akai DD1000 V3.0 MO disk editor, $7,900. (708) 441-8191.

Professional
Audio Design Inc.

- **Buy, Sell & Trade New Used & Vintage Equipment**
- **Custom Vintage Module Rack Systems**
- **Refurbishing, Repair & Maintenance Services**

Premier dealers for
AKG • ADL • API • Aphex • Bruel & Kjaer • BSS • dbx • DDA Demeter • Drawmer • Dynaudio Acoustics • Eventide Focusrite • Fostex • GML • Hafler • KRK • K-T • Lexicon Mackie • Neotek • Otari • Quested • Sennheiser • Soundtracs Tannoy • TC Electronic • TL Audio • Trident • Tube-Tech

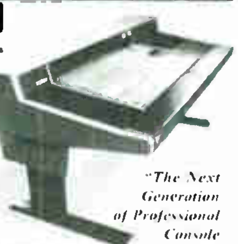
Design, Sales & Installation

Currently Available: ADL 200 2 chnl Tube D.I.$650 • ADL 1500 Stereo LA-2A type Comp $2,650 • Api 550B $1049 • 550A1 $650 • 560B $595 • API 28x16x24-Mint 60K • Amek MozartRN 48I/O $95K • Neve 1066 $1.6K • Neve 1272 $500 • Neve VI-48/Necam 90k • SSL 4056E/GTR $175K • Neumann U47-U67-U87-M49-Call • AKG C12VR 3,500• Teletronix LA-3A $2K/PR • Urei LA-4 $1400/pr • Trident 80 32x24 $25K • AMS RMX-16, 1580S $4K • Tube-Tech CL1B $1.7K • Telefunken V78 $850 • TL Audio Valve Comp $1.5K • Otari MTR-90II $20K • MX-80 $15K • Studer A827 $35K Sony JH-24 w/ALIII $14K • Neve V Rack-3 Eq/MicPre & 2 Dyn $6k • Pultec EQH-2 $2K • Lex PCM70 $ 1.4K • Lex 300 $4K• AKG C24-Mint $7K • **More gear in stock, call for complete list • VISA/MC**

Ph 617-982-2600 Fax 617-982-2610
357 Liberty Street Rockland, MA 02370

ATTENTION!
MACKIE 8•BUS OWNERS!

90 series



"The Next Generation of Professional Console Housings"

ARGOSY

INFORMATION: 1(800) 427-5698
Outside U.S. 314 346 8549 Fax 314 348 2769
ACI • Rt 3 Box 4374 A • Osage Beach MO 65065

API 2488 with original 550A EQ's 24x8x24. 528C mic pre's. A nice example of an orignal vintage console ready for service $45k; Rack of 8 Neve 1066's EQ's, $15k; MVE (212) 343-0265.

SONY DAT MACHINES
PCM-2700A
4 Head/4 Motor
"B" Stock units - Full Sony Warranty
Orig: $2350 Sell: $1685
Pro Digital Inc. 610-353-2400

ODYSSEY PRO SOUND

New & Used quality equipment
Ground-up Studio Design & Install

Consoles*Tape Machines*Mics*
Outboard*Vintage* Tube*Classic

Quality & Satisfaction Guaranteed!
Buy, list, trade quality audio gear.
Call for new equipment quotes!

FOR CURRENT LISTINGS CALL
Tel: (508)744-2001
MC Fax: (508)744-7224 VISA

DATRAX®
Originator in DAT Tape Storage Systems.
- **DATRAX 60 Solid Oak in Natural or Black Finish**
- **Nylon DAT Tape Carrying Cases**
- **NEW! DAT Tape Storage Drawers 320**

NEW PLASTIC LINE: ▲ DATRAX 40 ▲ Video 8mm Rax ▲ Cassette Rax ▲ All $21.95
Tel: 310.305.0317 ▲ Fax: 310.305.9167
CALL TOLL FREE: 800.9.DATRAX
BRYCO PRODUCTS, 8701 Falmouth Ave., Suite 201, Playa Del Rey, CA 90293
DAT RAX BRYCO PRODUCTS

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

ADC TT Patchcords NEW! $8.95
1/4" TS or T.T. TRS T.T. Bays, $99 up. Trade-ins? We sell all kinds of used gear. Audio Village (619) 320-0728. Fax: 320-2454.

35mm MAGNETIC DUBBERS: Magna-Tech Reproducer/Recorders w/Interlock: MD-235, MD-636, MR-436 for sale. Call Michael Temmer, (212) 206-1475. Fax: (212) 929-9082.

PURE AUDIO
We've Got Everything Under the Sun
NEW
USED
VINTAGE
Los Angeles, California
Ph (818) 887-6600
Fax (818) 887-4700
We stock ADL 1500 Stereo & 1000 Mono Tube Compressors! Consoles, Recorders, Mics, Outboard Equipment & MORE! WE BUY GEAR!!!

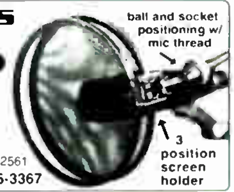
Equipment Financing
★ *New or Used Equipment*
★ *True Lease or $1.00 Buyout*
★ *No Financial Statements Required for Transactions Under $50,000*

to apply or request information contact John McMindes
1-800-477 LEASE
AMERICOM
LEASING, INC.

UPGRADE YOUR VOCALS
with Variable Acoustic Compression™
You choose 1 or 2 screens & distance between screens
User List: Westlake Audio, Sony Music, MCA Music, Masterfonics, Paisley Park, CBS, ABC, Fox Broadcast...
- 6 or 3.5 inch diameter screens $32*
- with gooseneck & mic clamp $54*
- washable replaceable screens
- money back guarantee

*plus shipping

POPLESSS VOICE SCREENS
PO Box 1014 New Paltz NY 12561
call, fax or write for FREE brochure (800) 252-1503 or (914) 255-3367



Classic Rarity
Neve 8232, Model 1988, in good condition, 32 channels, integrated TT patchbay, (2) Stereomaster, 28 VU-meters, Mic ins transformator balanced, central assign computer, with Multicores and power supply for sale by tender. Direct all offers and inquiries to: SAE, Bernard Birkner
Tel: +49-89-635-2490
Fax: +49-89-670-1811

Sound thinking
The Best Prices, The Best Service
you'll ever find on...
digidesign
ALESIS
and related products
541-386-2682

INFORMATION ON HOLD
Premier Technologies Inc. manufactures the highest-quality & easiest to use digital recorders for the emerging Message-on-Hold industry. These trouble-free units are easily connected to existing telephone systems. With over 13 million businesses in the USA, shouldn't they at least be saying "Thank you for Holding!"? For dealer info:
Premier Technologies
(800) 466-8642.

Quested monitoring systems model Q412c speakers and cross-overs. Price $7,500 U.S. 3 years old, never used in studio, personal use only. Call Gery (514) 638-6224

Otari MX-80 24-Trk., Mint Condition, Very low hours in personal use home studio, $16,000. Voice/Fax (714) 544-7845.

Neve 5432 8x2 console w/psu, $4k; pair Tannoy DMT-15 mint cond., $2,500; UREI LA-4, $1,400; pair or individual $700; dbx-166 stereo, $300; dbx-160 Blackface w/meter, $1,400 pr.; UREI 565 filter, $750; Tannoy SR840 MOSFET amp, $750; UREI 535 dual 10-band, $300; Yamaha G-7, $9k; Marshall Lead 12, $100; C-mix automation system w/Atari ST-1040ST, make offer. Call (704) 525-6700 or Fax (704) 522-9939.

MERCENARY BOSTON AUDIO
"THIS IS NOT A PROBLEM"
WE BUY, SELL AND TRADE VINTAGE EQUIPMENT.
"this is not a problem"
(508) 543-0069 TEL
(508) 543-9670 FAX

We Specialize in Audio/Video Equipment
EQUIPMENT FINANCING
Fast, Easy Qualification
No Financial Statements Necessary
True Lease or Finance Lease Option
To Apply or Request Additional Information Call Jeff Wetter Today.
FLEXLEASE, Inc.
COMMERCIAL EQUIPMENT FINANCING
Loans By Phone: (800) 699-FLEX
Fax: (214) 578-0944

Equipment for Sale

NEW, USED, DEMO EQUIPMENT
BEST SELECTION OF DIGITAL/ANALOG RECORDERS, CONSOLES, DAWS, OUTBOARD GEAR
Yamaha 02R Mixer, Otari Status/ Concept Consoles, Mackie 8-Bus, Alesis ADAT, Tascam DA-88, Sony PCM800, Otari Radar 24TK, Pro Tools III, All Digidesign Plug-Ins, Apple Power Macs, Apogee AD1000, Lexicon PCM80, TC Elec. M5000, Kodak CD Recorders, API, GML, ADL, Summit, Focusrite, Demeter, Lucas, TL Audio, Neumann Mics, AKG C-12VR, Microtech UM92SZ, B&K Mics, KM184.
Studio and System Design, Financing, Factory Service/ Installation. Experienced and Knowledgeable Sales Staff.
EAR PROFESSIONAL AUDIO
(602) 267-0600

Telefunken V72, 76, 77, 78, U73, Telefunken Tubes UF14, EF14, EF804S, AC 701. Neumann mics, many more; for actual list, call Christian (212) 674-5712 or Akzent Audiotechnik. Germany. 0049-(0)721-373622. Fax 373611.

STUDIO SALES
Auctions - Appraisals
TOP CASH PRICES
Liquidation Sales - Licensed
CUE
212 496-5652 Fax 212 496-0234

HARD DRIVES
Digidesign Approved
Storage Solutions For
Protools - Session 8 - Am2
NEW 4gb *REMOVABLES* and CD-Rom Recorders. From $995
Don't Settle For Dropouts Get Top Performance!
Tel: (305) 749-0555
Email: bigdisc@aol.com
BIG DISC
DATA STORAGE SYSTEMS

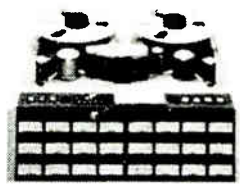
AMEK EINSTEIN CONSOLE
Super E Frame-Supertrue Automation 32-positions fitted, 64 automated channels w/EQ @ mix. Like new! Used for 1 album, a Grammy® Winner! Original cost $62k; +harness and patchbay, $4,500. Sacrifice for $37k for all! Call Christina at Living Music. (860) 567-8796 or Fax (860) 567-4276.

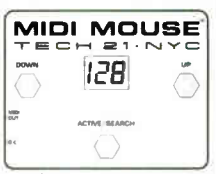
ALL ITEMS IN STOCK!! 2-NEUMANN U47 (2 serial #'s apart, perfect), $13k/pr*2-U48, M49, 2-KM64, 3-KM53 (all perfect/10 of 10's),*U47 body shells/capsules, AKG C-12 $6.5k*AKG C-28, $750*C61's, $1.8k/pr*C12A $1.5k*SONY C38FET, $1.3k/pr*STUDER A800 MKIII mint! $30k* A800 MKII/MKIII (no locate, 1000 hrs on heads) $19k*12x2 Melbourne, $12k*NEVE 24x6, $19k*NEVE 24x6 (44 ins for mix), $26k*NEVE 24 Chan. mntr. mixer, $3k*NEVE 24x4 frame (fits 31105, 1081), $4k*NEVE 5104 16x4 Baby V*CALREC 40x24x24, discrete w/PQ15, EMI/BEATLES 12x4 tube board/noEQ, Q-8 PACIFICA, discrete, 24x8x24, $7k*TRIDENT 65/40x16x16, $11k*NEVE 31105 (4-band 8078 EQ/pre), 1079 (same as 1073), 33114/33115 (3-band EQ), $850/$950 ea*NEVE 32264a, $4k/pr*33314 comp/lim,$2.8k/pr *2254e, $2.8k/pr*2254a, $2.6k/pr*1272, $350*1279, $275*NEVE+CALREC AM6/17A comp., $1.8k/pr*API 18x8x2 sidecar, $20k*API 325, FOCUSRITE RED 2, $2.7k*PYE comp/lim, $1.4k/pr* ALAN SMART SSL comp, $3.1k/new*CALREC PQ-14/PQ-15, AUDIX 35102 EQ/pre, V76 tube pre's, 10-LANGEVIN AM16, DIMENTION-D, $850*DOLBY A 16 chan., SONY DVU5800 3/4",$1k.
VINTAGE KING (313) 965-0645p. (313) 964-3338f.

VINTAGE NEVE™ 1272 PREAMPS

Brent Averill ENTERPRISES
$929.00 *Single channel*
$1539.00 *Two channel*
14300 Hortense Street • Sherman Oaks, CA 91423
818 784•2046 FAX 818 784•0750

Mix Classifieds **(800) 544-5530**

American Pro Audio

Digidesign • Opcode • Otari
Roland • Korg • Prodisk
Yamaha • Fostex • Dolby
Soundtracs • DDA • Ramsa
Trident • Neumann • Tannoy
Eventide • TC Elect • Summit
Great Prices!!!
Digital Workstations • Software
Keyboards • Recorders • Consoles • DAT
Leasing and financing
(612) 938-7777

This is one MIDI footcontroller that won't make you go "EEK!"


► Simple ► Compact (4-1/2" x 3-1/2")
► Battery Operable
► Heavy Duty ► Affordable
TECH 21·NYC
1600 Broadway, NYC, NY 10019
212-315-1116 · Fax: 212-315-0825

Classic
HUGE SELECTION OF VINTAGE EQUIPMENT
NEVE · API · SSL · TRIDENT · AKG · NEUMANN
STUDER · TELEFUNKEN · SONY
Consoles • Recorders • Microphones
Compressors • Preamps • EQ's • Effects
We specialize in precision rediaphragming of vintage microphones.
Let us refit your damaged or sonically inferior mic with a brand new diaphragm.
Highest Quality • Like Original
All work guaranteed
We can redo the following diaphragms:
U47, U48, M49, SM69, UM57, U67, U87, SM2, KM54, KM56, KM84, CMV563
& many more!
We stock: Capsules, Tubes, Connectors, Cables, Mounts, Mic Boxes, Power Supplies
Custom Racking
Classic ELECTRONICS
Phone: (818) 992-0999
Fax: (818) 340-4331
We Buy & Trade Equipment

Looking for new/used recording, keyboard, or outboard equipment? We've got **tons** of super clean **used**, as well as **new** products from **Tascam, Alesis, Kurzweil, Roland, Mackie, Genelec, Lexicon, Fostex, Yamaha, Korg,** and hundreds more. **Discount pricing** and **Worldwide Delivery**! 66 Years in business. Trade-ins welcome. Visit our new **22,500-sq.-ft.** location. Call, write or fax us today for price quotes and details. Also, find us on the Internet at **sales@caruso.net**. Start saving money today! Call **Caruso Music**, 94 State St., New London, CT 06320 USA. **(203) 442-9600**. (203) 442-0463/fax.

AVR Systems
AUDIO VIDEO RECORDING SYSTEMS, INC.
PROUDLY OFFERING
OVER 100 LINES OF PROFESSIONAL AUDIO EQUIPMENT
NEW and USED
CALL OUR KNOWLEDGEABLE SALES STAFF
* PROFESSIONAL ADVICE
* THE RIGHT PRICE
WORK WITH THE PRO'S
BOSTON
(617) 924-0660
CONNECTICUT
(203) 289-9475

VINTAGE USED:
CONSOLES: SSL G+ 56in w/Ultimation, call*SSL 4040 E/G TR, $125k*Neve 8048 32/1081 w/82 Flying faders, call*Neve VR60 w/ GML, call* Neve 8108 48/36, $45k*Neve 1976 (custom-discrete) 36 in, call*Trident 80C 48in w/auto, call*Trident TSM 32in w/auto, call*TAC Matchless 26x24, $9k*Peavey AMR 36in, $16k*Allen & Heath Saber 24x16, $7.5k*Raindirk Symphony (1989) 40in w/ auto, call*Neve 5124 36x24, $49.9k***24 TRACKS**: Studer A-820, 827, 800, 80, call*Otari MTR90II, $18k*Otari MX80, $15k*Sony JH24, $13k***16 TRACKS:** Otari MX70, $5.5k*Tascam ATR60, $5.5k*Studer, call* **MICS**: U87, U67, U47, M49, CMV3, TLM50 ,call*AKG C12VR, $3k*AKG 414, $650*AKG C24, call***REVERBS**: AMS RMX16, call*Lexicon PCM70, $1.3k*Yamaha REV7, $675* **MONITORS**: Quested & KRK.
NEW EQUIPMENT IN STOCK. WE BUY VINTAGE GEAR.
Vintage Neve Modules & compressors in stock.

HARBORSOUND
180a CENTRAL STREET & VIDEO
SAUGUS, MASS. 01906
(617) 231-0095 Fax: (617) 231-0295

Used Neve 8036 console (extended to 36 channels), complete except for EQ modules. Used Neve 8014 basic console frame, missing EQ and switching modules. For more information contact John, tel (604) 988-0664; fax (604) 448-0222. Offers.

Neve 1073s
$2,200 ea., cleaned and recapped, 12 Focusrite mic pre's w/remote controller, $9,500. (4) Focusrite mic pre's with remote controller and Anvil flight case, $2,000. Sony APR-24 1,400 hrs., $23k. Call Mike at (516) 481-0100.

Night Technologies EQ3
Before you buy yours, check with us. We have a few demo units at only $2,599 each.
Full Warranty.
Deb Chagares (317) 962-8596

ATR Service Company
The AMPEX Source
- ATR100 sales and complete restoration services.
- **1/2" Two Track Mixing and Mastering conversions** featuring performance selected Flux Magnetics precision heads. Performance plots provided with each conversion. Recontour and wear tracking services for all heads we sell.
- **Introducing HDV-2 Modular Tube Electronics for the ATR100.**
- Ultra low flutter mastering grade Urethane Capstan Assemblies for ATR100 and ATR124.

Contact: Michael Spitz
Voice or Fax: 415-574-1165

The Means Of Production
TMOP
New & used audio equipment
Professional personalized service
Tel 818-988-TMOP (8667)
Fax 818-988-8600
E-mail TMOP5 @aol.com

AUCTION Sales
complete studios - consignments
1-800-423-5499
or visit our web page at
http://soundwave.com/hba/hbaindex.html
Hamilton Brosious Associates
Auctioneers and Appraisers

NEUTRIK TT CABLES
$10.95
24" Length. 5 Colors
(615) 367-9242
9 AM-5 PM. M-F (CST)
GREEN DOT AUDIO


America's best disc, tape & component storage system
Stackable, portable oak units hold all recording formats
Free mailorder brochure
(please mention Mix)
Per Madsen Design
PO Box 882464
San Francisco, CA 94188
(415) 822-4883

Blue
Baltic Latvian Universal Electronics

ORIGINAL STYLE VINTAGE SHOCKMOUNTS
Neumann, U47, U87, U67, 563, UM57, SM2, SM69, 582
AKG C12, C24
Yokemounts for Neumann M49/M50
$350.00 ea. plus shipping & COD
SASE for BLUE Flyer on:
Vintage microphones, parts and accessories.
Beautiful custom mahogany boxes available.
818.986.BLUE (2583)
FAX 818.784.7564

Automatic Microphone Switch
The IR1 from **D3, Inc.** is the fastest, and easist way to clean up any mix. Just plug it into your mic, and enjoy the hands free control! Call Toll-Free for dealer information today.
800-701-7899 Fax 408-745-7897

SEE OUR AD IN MARKETPLACE pg. 211

BOUTIQUE AUDIO & DESIGN
Custom racks and power supplies for all vintage modules. **Qualified** vintage microphone repair and restoration. **Guaranteed** repair and restoration of all vintage recording equipment. E-mail boutiquea@aol.com.Web: http://home. navisoft.com/boutiquea. PH (818) 708-7716 FAX (818) 708-7105.

"I'll also be looking through the classifieds of *Mix* magazine, looking for that rare—and perhaps useless—piece of audio equipment I've been looking for all those years..."
- Walter Becker
Mix interview, April 1995

Equipment Wanted

MERCENARY AUDIO WANTS TO BUY YOUR:
NEVE-SSL-TRIDENT-AMEK
UREI-TELETRONIX-FAIRCHILD
PULTEC-LANG-LEXICON
UNIVERSAL AUDIO-NEUMANN
AKG-TELEFUNKEN-AMS
ANYTHING THAT IS OF EXCEPTIONAL AUDIO QUALITY!
"this is not a problem"
(508) 543-0069 TEL
(508) 543-9670 FAX

EQUIPMENT WANTED
BUY OR TRADE
YOUR USED MULTITRACK RECORDERS
AND CONSOLES
EAR PROFESSIONAL AUDIO/VIDEO
(602) 267-0600

We want your used keyboard, recording and audio equipment. We'll **airmail** you **$$$** or take your stuff in trade toward over **350 brands** of new and used products. **Come in or do it all through the mail.** 66 years in business. **Worldwide delivery**. Visit our new **22,500-sq.-ft.** location. **Call**, write, or fax us today for price quotes and details. Also, find us on the Internet at **sales@caruso.net**. Start saving money today. Call **Caruso Music**, 94 State St., New London, Ct. 06320 USA. **(203) 442-9600**. (203) 442-0463/fax.

LATHE, HEAD, ELECTRONIX
Working Stereo or Mono lathe for non-commerical purposes. Neumann, Ortofon, Scully, Westrex, Haeco preferred. Will remove from premises. Please call Rob: (419) 536-2302 or send your fax: (419) 536-3273.

Equipment Wanted

TUBE EQUIPMENT WANTED
RECORD CUTTING LATHES
HEADS, LIMITERS, AMPS
Neumann, Westrex, Haeco, RCA
Fairchild, Scully, Ortofon, Presto
Grampian, Gotham, Pultec, Lang
Mac/Marantz, 16" arms, records
related items (612) 869-4963

Seeking used SSL G-Plus series
4000 with ultimation,
64 ch.-frame.

Phone: +49 69 96 36 41 0
Fax: +49 69 96 36 41 41

Instruction

RECORDING ENGINEER ON THE JOB TRAINING AT A MAJOR STUDIO IN YOUR AREA

Keep your present job.

No experience required.

Train around your own schedule.

THE RECORDING EXPERIENCE

1-800-795-5750

MUSIC RECORDING INDUSTRY CERTIFICATE PROGRAM
San Francisco State University College of Extended Learning. Classes taught by Bay Area pros. Expand skills and earn certificate. Engineering, management, songwriting & more!
Call (415) 338-1373.

FAX YOUR AD (510) 653-8171

Maintenance Services & Repairs

HEAD RELAP/ REPLACEMENT
multitrack analog specialists
iem
Palatine, IL
(800) 227-4323

LEXICON 200 & 224 DIGITAL REVERB SERVICE
Expert service repairs on all models. Quick turnaround and warranty. Service for Lexicon Prime Time Delays also available. (508) 875-1076 after 6 p.m. EST, or leave message.

DATs FIXED FAST!
Expert solutions for all DAT recorder problems
- All makes and models
- Experienced, factory-trained techs
- Fast turnaround
- Repairs, overhauls, parts

"The DAT doctor is in!"
NXT GENERATION
201-579-4849 Fax 201-579-6021

Mix Marketplace
Mix Classifieds
(800) 544-5530

DAT Machine Service
Digital Audio Tape
Fast, expert repairs on all DAT recorder brands & models including ADAT and DA-88
Warranty Service on Most Brands
Over 2000 Machines Serviced!
UPS Pickup Service Available
Compare Our Rates!
Pro Digital Inc.
DAT Recorder Service Specialists
(610) 353-2400

STUDIO TECH SUPPLY
WORLD CLASS QUALITY - COMPETITIVE PRICING
INSTALLATION * CONSULTATION * LEASING

AKG AMEK/Langley API Behringer Beyer B&K Brainstorm Bryston Calrec Canare DDA Demeter Digidesign Dolby-Pro Drawmer Dynaudio Equi=Tech Eventide Focusrite Fostex-Pro Genelec Hafler KRK Lexicon Mackie Microtech-Gefell Mogami MRL Neutrik NTI Optifile Otari Pro-Co Sonex Sony-Pro SPL Soundcraft Soundfield Studio-Technologies Summit-Audio Timeline TL-Audio Tube-Tech Uptown Vac-Rac 4000 Z Systems and many more.
AUTHORIZED SERVICE
AMEK/Langley DDA Fostex Mackie MCI Otari Soundcraft Tascam
9982 MONROE #407 DALLAS, TEXAS 75220
PHONE: (214) 358-0050 FAX: (214) 358-0947

Music Products/ Software

ProSound Toolkit
The Ultimate Pro Audio CD ROM for Macintosh!™
Interactive reference materials, test tones, tuning notes, Sound FX, formulas, tips, projects, contacts, resources, and more for Mac OS.™
CD Audio & CD ROM on one disc!
Send $39 Check or Money Order (includes US shipping)
Write or call for info. 314-644-5788
Creative Digital Services Corporation
3718 Oxford Ave., St Louis MO 63143

New Products

REAMP-REAMP-REAMP
The Rolling Stones, Aerosmith, Van Halen, Steve Vai, Chris Isaak, Neil Schon, Joe Blaney, Andy Johns, Tom Size, Matt Wallace, Charlie Sexton, Joe Chiccarelli

WHAT MAKES THESE GUYS SO COOL?
Among other things, having the right tools for the job. Enter the reamp™
With the reamp, an age old interface problem of providing correct impedance and level adjustment between all professional audio equipment to any instrument amplifier has been solved.
The reamp is designed and built for this and other applications by engineer John Cuniberti for records with Joe Satriani, George Lynch, Michael Manring, and The Neville Brothers.
GET A reamp™ TODAY!!!
Worldwide distribution by: **AXI**
T 617.982.2626 F 617.982.2610
• dealer inquiries welcome •

Recording Services

LOWEST PRICES ON REAL-TIME DUPLICATION!
300 Chrome (up to 45-min.) 4-color J-Card, Imprint, Shrink, **$679.99** includes P/U + Grnd shipng. Visa/MC/Disc. ACCURATE AUDIO LABS, INC. (800) 801-7664.

CD & CD ROM Manufacturing
The Best CD mastering...
CD Booklet Printing and Graphic Design ...
DIGITAL DOMAIN™ (800)344-4361 (212)369-2932
See us in *Mix Marketplace*

SEE OUR AD IN MARKETPLACE pg. 210

Need REAL DRUMS on your adat TRACKS???
Call **Jim McCarty**
(credits include Buck Owens, Ringo Starr, John Stewart, & Helen Reddy)
1 (800) 484-6368 EXT. 7298
Reasonable rates Fed Ex, UPS., or US Mail
Free demo tape available Money back guarantee

CUSTOM COMPACT DISCS
Affordable single-copy CDs starting at $30. Write, call or fax for information.
46 PRODUCTIONS
42W557 Hawk Circle
St. Charles, IL 60175
TEL: (800) 850-5423
FAX: (800) 203-1725
email: FortySixP@aol.com.

Focusrite PRO TOOLS Mastering as low as $10/Song $20/CD-R
www.starbox.com/sandbox/
Ph. (707) 649-9163 FAX 9164

CD RECORDABLES
AS LOW AS $16.00 PER DISC
Your Logo / Fast Turnaround
ADVANCE / PRE-RELEASE
REFERENCE / ROM BETA COPIES
CD MASTERING DIGITAL EDITING
CD PRODUCTION DIGITAL TRANSFERS
DB Plus Digital Services, Inc.
250 W 57th Street., Suite 725
New York City, N.Y. 10107
212-397-4099 / 397-2207 Fax

Records Tapes CD Services

Records Tapes CD Services

Subscription Questions?
Call (800) 843-4086

Miscellaneous

MIX CLASSIFIEDS WORK FOR YOU

Text rate: $100 per inch; eight (8) lines per inch (approximately 27-32 character spaces per line); one-inch minimum. $10 per bold line. Each space and punctuation mark counts as a character. $100 minimum charge for each ad placed.

Enhancements: $10 black border, $15 for a grey-screened background, $25 for a reverse, $25 for Post Office box service. Charges are based on a per-insertion basis.

Display rate: $125 per inch (1" minimum/half-page maximum). Display Classified advertising must be camera-ready, sized to MIX column widths and specs. Frequency discount rates available; call for information.

Closing: Fifteenth of the month, six weeks prior to the cover date (ex: April issue closing is February 15). Ads received after closing will be held for the next month unless otherwise stated. Cancellations will not be accepted after the closing date. Copy changes and cancellations must be submitted in writing.

Other requirements: Full street address (PO boxes aren't sufficient) and phone numbers must accompany all requests. All words to be bold should be underlined. Copy must be typed or printed legibly in standard upper/lower case. Publishers are not responsible for errors due to poor copy. Arrangement of characters may be altered in typesetting process due to space. The publishers are not liable for the contents of advertisements.

The small print: No stated or implied discounts allowed on new equipment sales. Publishers reserve the right to refuse or discontinue any ad deemed inappropriate.

Send coupon payment to: **Mix Magazine Classifieds: Attn: Robin Boyce, 6400 Hollis St., #12, Emeryville, CA 94608, tel. (800) 544-5530 or (510) 653-3307; fax (510) 653-8171. Payment must be included with copy: check, Visa, MasterCard, or American Express accepted. Sorry, no billing or credit available.**

CATEGORIES AVAILABLE (check one)

- ❑ Acoustic Consulting
- ❑ Business Opportunities
- ❑ Employment Offered
- ❑ Employment Wanted
- ❑ Equipment for Sale
- ❑ Equipment Wanted
- ❑ Equipment Rentals
- ❑ Financial Services
- ❑ Instruction
- ❑ Maintenance Services
- ❑ Multi-media
- ❑ Music Products/Software
- ❑ New Products
- ❑ Records, Tapes & CD Services & Supplies
- ❑ Recording Services & Repairs
- ❑ Services & Supplies
- ❑ Studios
- ❑ Video Equipment
- ❑ Miscellaneous

Attach Your Classified Ad Copy on a Separate Sheet, Typed Double-Spaced or Printed Clearly in Capital and Lower-Case Letters.

Company Name _____

Name _____

Address (no PO Boxes) _____

City _____

State _____ Zip _____

Phone ( ) _____

Signature _____

_____ Display ($125 per inch) $ _____

_____ Text ($100 per inch, one-inch minimum) $ _____

_____ Bold @$10 additional $ _____

_____ Border @ $10 $ _____

_____ Reverse @ $25 $ _____

_____ Screen @ $15 $ _____

_____ Blind P.O. box @ $25 $ _____

TOTAL PAYMENT INCLUDED $ _____

❑ Visa ❑ MC ❑ AMEX

❑ Check/Money Order # _____

Card # _____

Exp _____

Classified Ad Deadlines

March 15, '96 deadline for MAY '96 issue

April 15, '96 deadline for JUNE '96 issue

May 15, '96 deadline for JULY '96 issue

Call Robin Boyce (800) 544-5530

Reach over **49,362** audio **professionals** every month with an **ad** in **Mix MARKETPLACE!**

For **Rates** and **Deadlines:**

(800) 544-5530

FEEDBACK

ALL HAIL ST. GEORGE!

Bravo! Bravo! George Petersen, you are a saint! (Re: The toughest audio job in show business, *Mix* Sept. '95.) I am the resident sound designer/board op for a small community theater in Northern California. After making the switch from rock 'n' roll club mixing to musical theater, I've realized what an undertaking these types of productions can become. A house that seats just over 250 patrons, built in a strip center with 14-foot ceilings at best, brings on a whole new realm of weirdness and anomalies.

Mix has always done wonderful spotlights on a variety of different applications. I would love to see some in-depth writing about small musical theater companies around the country. These real-world companies are where virtually all theater in this country takes place.

Thanks for keeping us all up to date, and keep up the great work!

Jon Fox
Chico City Light Opera
Chico, Calif.

THE GREAT EQUALIZER

I just finished reading the articles "Advice on Tuning Control Rooms" in the August '95 issue and the "Optimizing the Studio Listening Environment" in the October issue. I am not surprised electronic equalization has received such a bad rap over the years. It is apparent that very few people understand the process of interfacing speakers into an environment. Our firm has been involved in designing studios, sound systems and interfacing speakers into environments for more than 25 years, and each and every project is a great learning experience. During this time, I have come to realize that the process of equalization is as much an art form as an engineering practice. The first thing that must be understood is that it is impossible to equalize a "room" or change anything acoustically in a room with any electronic equalizer or similar device; such devices can only adjust the direct sound emanating from the loudspeakers. But, used properly, the correct equalizers—and I stress the word correct because most equalizers sound terrible—can make a world of difference.

Acoustics is mostly precision guesswork, and contrary to some designers' statements, there is no such thing as an acoustically perfect control room. With the exception of Ocean Way's Record One, I have yet to hear a control room that would not sound better and translate more accurately with the addition of the proper equalization, but the benefits of equalization far outweigh the drawbacks for several reasons. First, most designers have the best intentions when designing a control room on paper, but because people make recordings, not control rooms, equipment ends up sitting all around the mixing position. Minor adjustments to the equalizers will allow the two speakers to sound exactly the same and smooth out any bumps in the frequency response when things are not as they were designed.

Second, we have hundreds of clients whose control rooms are far less than ideal acoustical environments, and for one reason or another do not want to or cannot afford to redesign their control room. The proper interfacing allows them to have a fun and exciting system to listen to and a true reference to the outside world.

Third, most loudspeakers are composed of cardboard and/or some type of metal, and these materials expand and contract with use and weather changes. Equalization allows minor adjustments to be made, keeping the speakers consistent from month to month.

Fourth, a playback system may be adjusted to meet the subjective taste of a client easily and cost-effectively.

There are hundreds of factors which make up a great monitoring system, such as proper aiming of the speakers, how the speakers are mounted and the acoustical environment around the speakers, etc., and each one contributes to the overall sound of the room.

It is important to remember that it is not any one thing that makes a great-sounding environment. It is the total of the hundreds of little things and intelligent choices based on practical experience and common sense.

We have experimented with almost every type of measurement technique known to man and have not found anything that works well or is as consistent as band-limited noise measurements and quality-time listening with our clients. Real-time analyzers and other computer-based measurement systems have their place, but most are very inaccurate in the bass frequencies and have nothing to do with music. To quote Lyle Yerges' famous words, "Good data and results come from simple measurements and observations, using as few pieces of instrumentation as possible. Error and nonsense are directly proportional to the amount of gear and number of measurements." Regarding control room acoustics, truer words were never spoken.

Steven Durr
President, Steven Durr and Associates
Nashville, Tenn.

AN OPEN LETTER TO 3M CEO L.D. DESIMONE

After hearing news that 3M Company is pulling out of the magnetic tape business, I and thousands of other music industry people feel not only irate but betrayed. What kind of "visionary" company could possibly give up a profitable, near-billion-dollar-a-year business? What annual profit does it take to keep you happy? Two hundred million...? Have you no conscience? Magnetic tape is the lifeblood of the entertainment and music arts industry.

I believe 3M has a moral obligation to the performing arts and to its employees to do the "visionary" thing. Maybe drop your consumer tape products and concede defeat to your offshore competition, but don't gift wrap the professional mag tape business for them. America doesn't need to hand another billion-dollar business and another thousand jobs over to less greedy foreign interests.

Michael Spitz
ATR Service Co.
San Mateo, Calif.

Send Feedback to Mix, *6400 Hollis St. #12, Emeryville, CA 94608; fax (510) 653-5142; or 74673.3672@compuserve.com*

12×2 MIC/LINE MIXER

NEW MS1202 VLZ

THE ORIGINAL MS1202 TOOK SMALL MIXERS IN A NEW DIRECTION. JUST THINK OF WHERE YOU CAN GO NOW THAT WE'VE ADDED A DOZEN NEW FEATURES.

- 2 mono mic/line chs.
- 4 stereo line chs.
- 2 aux sends per ch.
- 2 stereo aux returns
- Efx return to monitor
- and EQ w/Lo Cut filter
- ...es on every channel
- ...ses via Mute/ALT 3-4
- ...metering via PFL Solo
- ...trol Room monitoring
- Headphone output
- 4 channel inserts
- XLR & ¼" outputs
- Multi-way metering
- Sealed rotary controls
- Built-in power supply

For 5 years, our Micro Series 1202 12-ch. mixer has toured with superstars, gathered network news, pinch hit next to mega-consoles...and has been the main mixer in a lot of home studios.

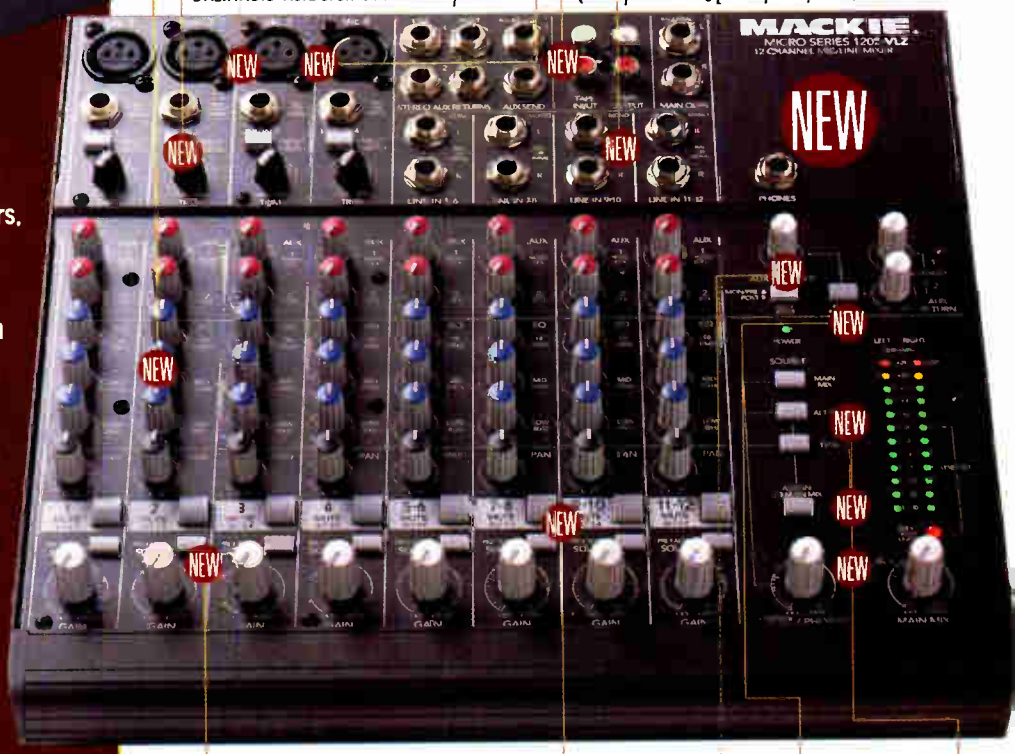
All that time, we've been reading warranty cards for suggestions on how we could improve the MS1202.

This is the result. Same great value. Same built-like a tank construction. But with some exquisitely handy new goodies that make it an even more effective tool for recording and live performance. Including 3-band EQ, balanced XLR outputs, PFL Solo, channel mutes (with Alt 3-4 bus) and multi-source Control Room monitoring.

Visit your Mackie dealer (the MS1202 VLZ's in stock right now) or call us toll-free for detailed information.

1 3-BAND EQ *on all chs, PLUS...*
2 LO CUT FILTER *(Chs. 1-4). dramatically extends useable bass EQ by cutting stage rumble, mic thumps, etc. just like on our 8•Bus and SR Series. VERY IMPORTANT!*
3 60dB GAIN on *on first 4 channels via balanced mic inputs.*

4 VIRTUAL PAD *on first 4 channels (line inputs only). 10dB attenuation with trim all the way down; Unity at 9:00 so you can add even more EQ to already-hot signals.*
5 –10dBV RCA TAPE OUT INTERFACE
6 ALL INPUTS & OUTPUTS BALANCED *(except RCA-type tape inputs)*



7 PFL SOLO *on all channels makes level-setting via meters easy, Interrupts Control Room/Phones selection & ignites Rude Solo LED.*
8 VLZ *(Very Low Impedance) circuitry for pristine sound.*

9 BALANCED XLR MAIN OUTPUTS *with switchable 30dB pad for connecting to Mic Level inputs.*

10 AUX 1 PRE/POST *global switch.*
11 EFFECTS TO MONITOR *lets you add reverb to your stage monitor mix, just like with our SR Series.*
12 CONTROL ROOM/PHONES MONITORING *w/level control lets you select any combination of Main Mix, Tape In and Alt 3-4 signals for Phones, Control Room & meters. Plus you can re-route it back to the main mix!*
13 MUTE/ALT 3-4 *routes main mix to separate stereo bus.*

MACKIE™

16220 Wood-Red Road • Woodinville • WA • 98072 800/898-3211 206/487-4337
Internet sales@mackie.com • Represented in Canada by S.F. Marketing 800/363-8855

Made for the way you play.

Turn it ON

Turn it UP

TR SERIES

With the all new TR Series loudspeakers, you can crank it *all* the way up. Because with protective SonicGuard™ Circuitry, they are more bulletproof than any speakers in their class.

Fact is, we've already put the TR speakers through the most merciless torture test in the industry by cranking them at full throttle for 300 hours. So a 3-hour gig is just a warm up act.

And while you're playing hard, rest assured your sound is never compromised. With features found only in higher-end speakers, the TR speakers always maintain a balanced output of crisp highs and killer lows.

At JBL our goal was to bring you a more affordable JBL speaker, not a cheap one. So turn it on. Turn it up. And give the new TR Series a listen. At this price, it's time to get a speaker that was made for the way you play.

JBL

H A Harman International Company

TR. MR. SR. The unbeatable line-up of sound reinforcement products from JBL Professional.