Ry Cooder in Cuba · Report From NAMM · Interview: Sound One's Jeremy Koch

U.S. $4.95 CANADA $5.95 APRIL 1998

MIX®

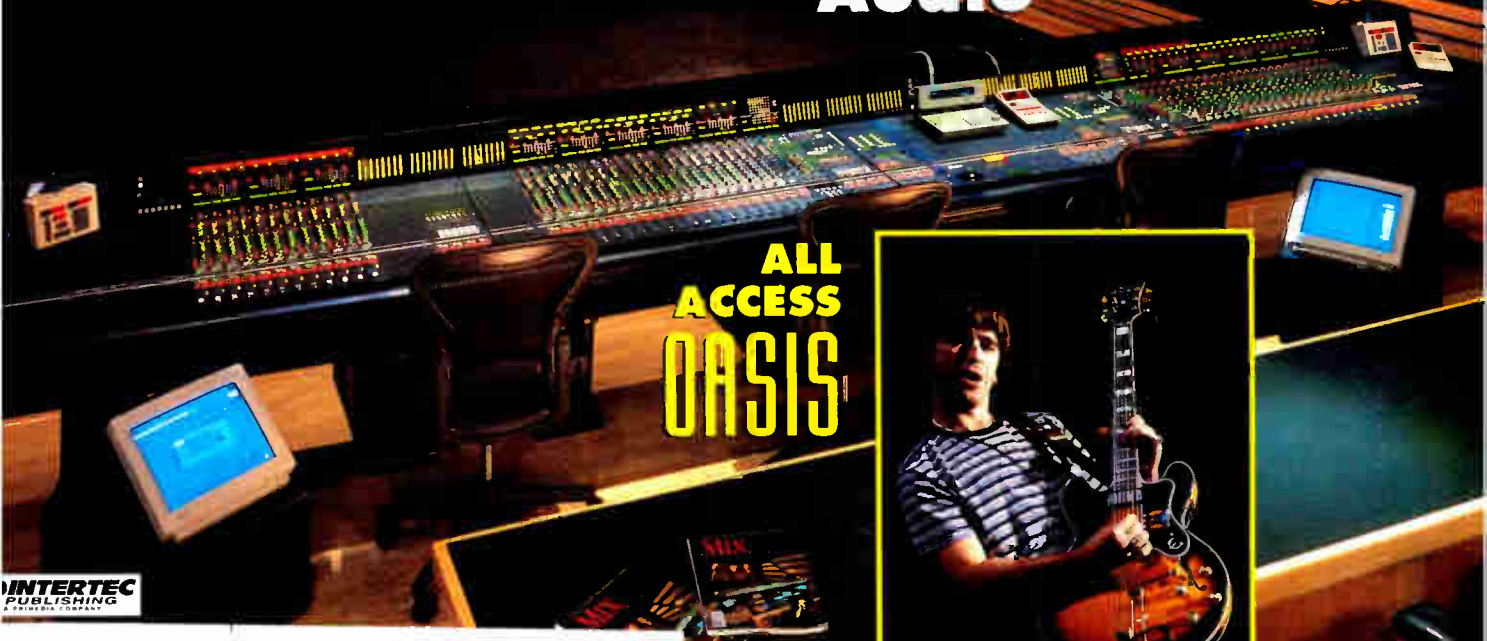
PROFESSIONAL RECORDING · SOUND AND MUSIC PRODUCTION

SOUND FOR PICTURE SUPPLEMENT

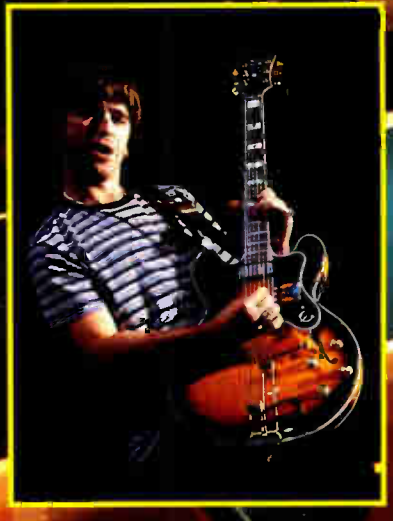
- Editar/Mixer Walter Murch
- Sound for "Brooklyn South"

Add Surround To Any Console

Frontiers of Long-Distance Audio



ALL ACCESS OASIS

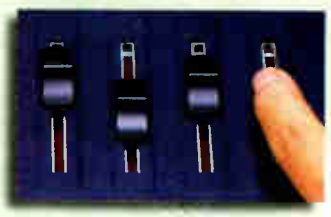


INTERTEC PUBLISHING
A PRIMEDIA COMPANY

WWW.MIXMAG.COM

A Different Slant on Reverb

As a new sports car beckons you to the open road, the Wedge's totally unique desktop design makes creating great reverb a breeze. It's the first reverb that's fun to drive.



Just push the Wedge's edit button and start adjusting your reverb with the four edit sliders. It's easy to get creative with the Wedge's powerful parameters like decay, frequency damping, swirl, early reflection room shape, width, density and diffusion.

For as long as effects processors have been bolted into racks, customizing your reverb sound has been about as much fun as setting the time on a digital watch. But the Alesis Wedge™ offers an ingenious new angle to the way you approach reverb and ambient effects.

Unlike racked effects, the Wedge is a dedicated Desktop Master Reverb, cleverly designed to be used on or near a mixing console where you do your most critical listening... in the sweet spot of your mix. And with four edit sliders to access several effects parameters at once, you'll find yourself tweaking aspects of your sound you would never dream of editing in a rackmount box. Result: more inspiration for recording and mixing, and less limitation on your creativity.

There's more to the Wedge than its great design, like all-new algorithms that represent the finest, most detailed, best-sounding reverb you've ever heard, especially in an affordable processor. Don't limit yourself to the rack; instead, think differently and try out a new slant on reverb. The Wedge. At your Alesis Dealer now.

Instead of using a snare drum to set up your reverb, the Wedge offers the innovative Impulse Audition™ feature, which sends a full bandwidth audio signal to help you get flawless reverb for every application.

WEDGE™

DESKTOP MASTER REVERB W/IMPULSE AUDITION

If you're on the net, check out the special Wedge page with audio files at www.alesis.com/wedge.
For more information on the Wedge Desktop Master Reverb, see your Authorized Alesis Dealer or call 800-5-ALESIS.
® Wedge and Impulse Audition are trademarks of Alesis Corporation.

Alesis Corporation
1633 26th Street Santa Monica CA 90404 800-5-ALESIS alecorp@alesis1.usa.com www.alesis.com

ALESIS

CIRCLE #001 ON PRODUCT INFO CARD

Great Studios Of The World

PRODUCTION NOTES

With two 80-channel SL 9000 J Series consoles, New York's Quad Recording has hosted such well-known artists as Metallica, Hole, Mariah Carey, Jon Bon Jovi, and recently Sugar Ray. Producer/Engineer David Kahne mixed several tracks of Sugar Ray's almost double platinum CD 'Floored' on Atlantic Records at Quad on an SL 9000. "I felt that I wasn't getting everything that I could out of the original mixes, and I knew I would get that once I mixed them on the J. The 9000 has huge sound and power, and a computer that's ultra fast and completely flexible. For me, the 9000 is THE console."

QUAD Recording Studios

723 Seventh Avenue,
New York, NY 10019
Phone: 212 730 1035

Solid State Logic

International Headquarters
Begbroke, Oxford, OX5 1RU, England
Tel: +44 (0)1865 842300
Fax: +44 (0)1865 842118
E-mail: sales@solid-state-logic.com
http://www.solid-state-logic.com

SL 9000 J SERIES

SL 9000

New York +1 (212) 315 1111
Los Angeles +1 (213) 463 4444
Tokyo +81 (3) 5474 1144
Paris +33 (1) 3460 4666
Milan +39 (2) 2622 4956
Toronto +1 (416) 431 9131
Singapore +65 285 9300

Hard to Find . . . Tough to Beat!

While Drawmer products are readily found in top recording studios and sound systems throughout Europe and the rest of the world, they are a bit harder to find in the U.S.

ALL THAT'S ABOUT TO CHANGE!

Demand a Drawmer Demo Now!

To find your local dealer call:

(805)241-4443

DRAWMER MX

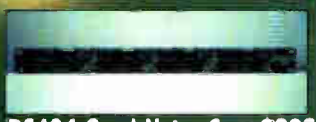
MX30 Gated/Comp/Limiter $449

MX40 Punch Gate $599

COMING SOON! MX50

DRAWMER PRO

DS201 Dual Noise Gate $699



DS404 Quad Noise Gate $999

DL241 Auto Compressor $649

DL251 Spectral Compressor $999

DL441 Quad Auto Comp/Limit $1,049

DRAWMER SIXTIES

1960 Vacuum Tube Compressor/Preamp $2,349

1961 Vacuum Tube Equalizer $2,349

DRAWMER DIGITAL

1962 A/D Digital Vacuum Tube Preamp $4,999

COMING SOON! Model 2496

All Prices are US$ – MSRP

Drawmer

Transamerica Audio Group Inc.
2721 Calle Olivo • Thousand Oaks, CA 91360

CIRCLE #002 ON PRODUCT INFO CARD

Clean Up Your Listening Environment

Recycle Your Old Monitor Speakers

TANNOY
FOR THOSE WHO KNOW

REVEAL

Tannoy/TGI North America • 300 Gage Avenue, Unit 1 • Kitchener, Ontario, Canada N2M 2C8 • 519 745 1158 • Fax: 519 745 2364 • Web site: http://www.tannoy.com

TOLL FREE DEALER ORDER HOT LINE (FAX): 1-800-525-7081

CIRCLE #003 ON PRODUCT INFO CARD

MIX®

PROFESSIONAL RECORDING • SOUND AND MUSIC PRODUCTION

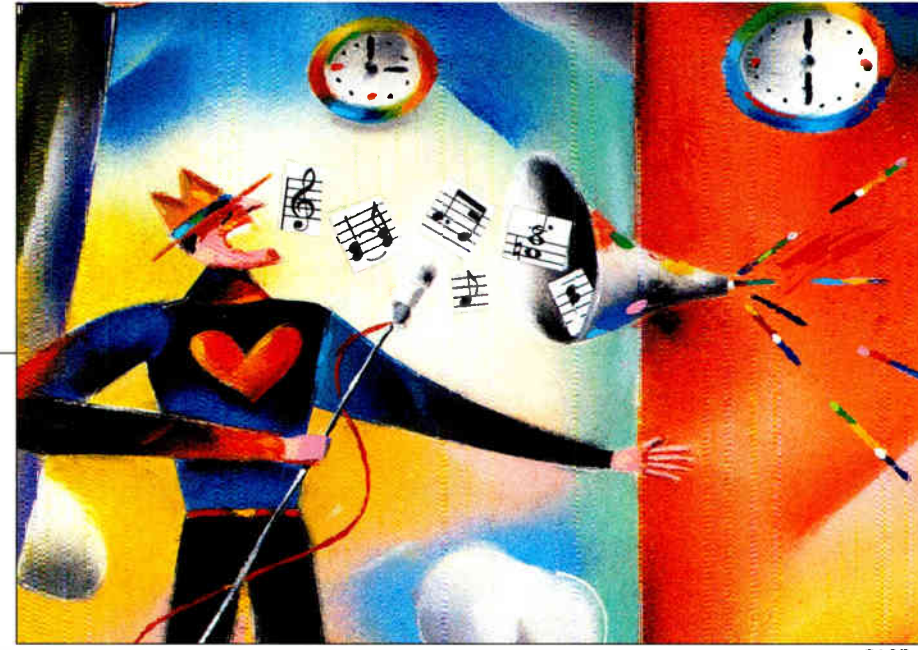
APRIL 1998, VOLUME 22, NUMBER 4

AUDIO

PAGE SFP 6

SOUND FOR PICTURE SUPPLEMENT

PAGE 74



PAGE 32

PRODUCTS

PAGE 152

LIVE SOUND

DEPARTMENTS

On the Cover: Vine Street Studios, the film mixing facility owned by Soundelux and featuring two stages, each equipped with 144-input Harrison Series Twelve consoles, officially opened in December on the site of the former Ryder Sound Services. For more on the facility, see the story in the Sound for Picture supplement, beginning on page 97. **Photo:** Ed Freeman. **Inset photo:** Steve Jennings.

Check out Mix Online!
http://www.mixmag.com

This should put an end to that "beauty

Good solid handles for easy lifting and rack installation

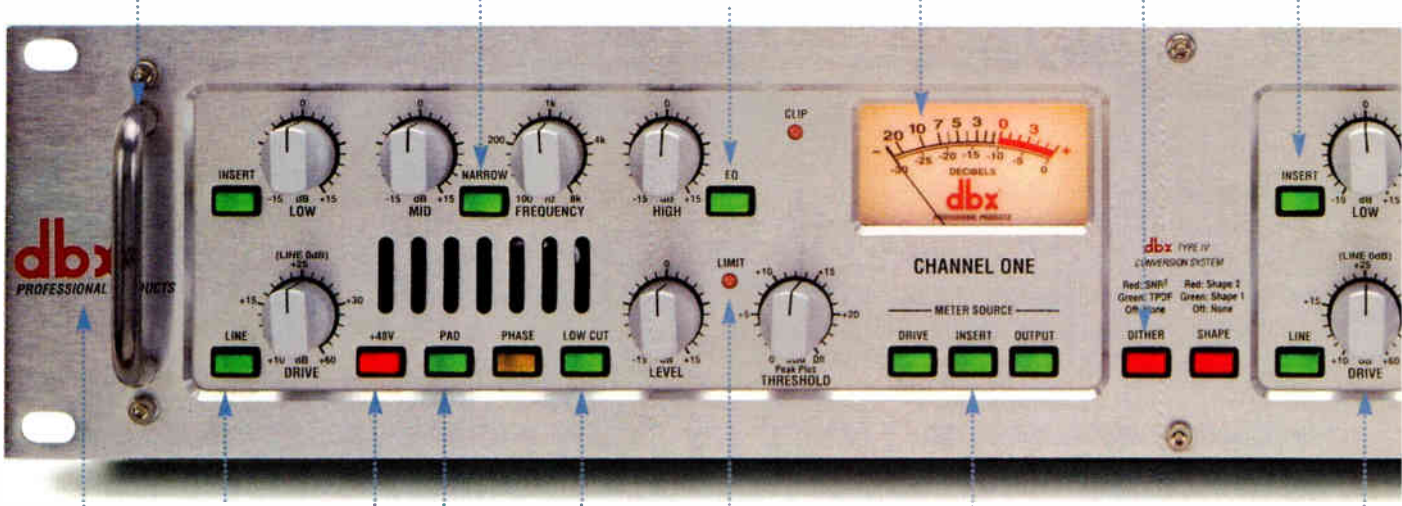
dbx Lightpipe switches for easy viewing under any lighting conditions

EQ in/out. Hardwired

Big analog VU metering

Insert in 'n' out. Yes, you can leave the inserts connected when not in use. It makes happy patch bays.

Digital out put dither and shape controls



The dbx name, because hey we made it

Mic/Line from the front panel

Full 48V phantom power

-20dB Pad

12dB/OCT 75Hz Bessel Low cut filter

Limiter hit light...you went over the line

Switchable from drive, insert, or output metering

Drive control for a wide variety of tube sounds: soft and warm to hard and in your face!

Output switchable between +4/-10 operation

Optional dbx Type IV™ Conversion System

Optional dbx transformer balanced outputs

Call your dealer now. You'll be surprised at the small price tag.

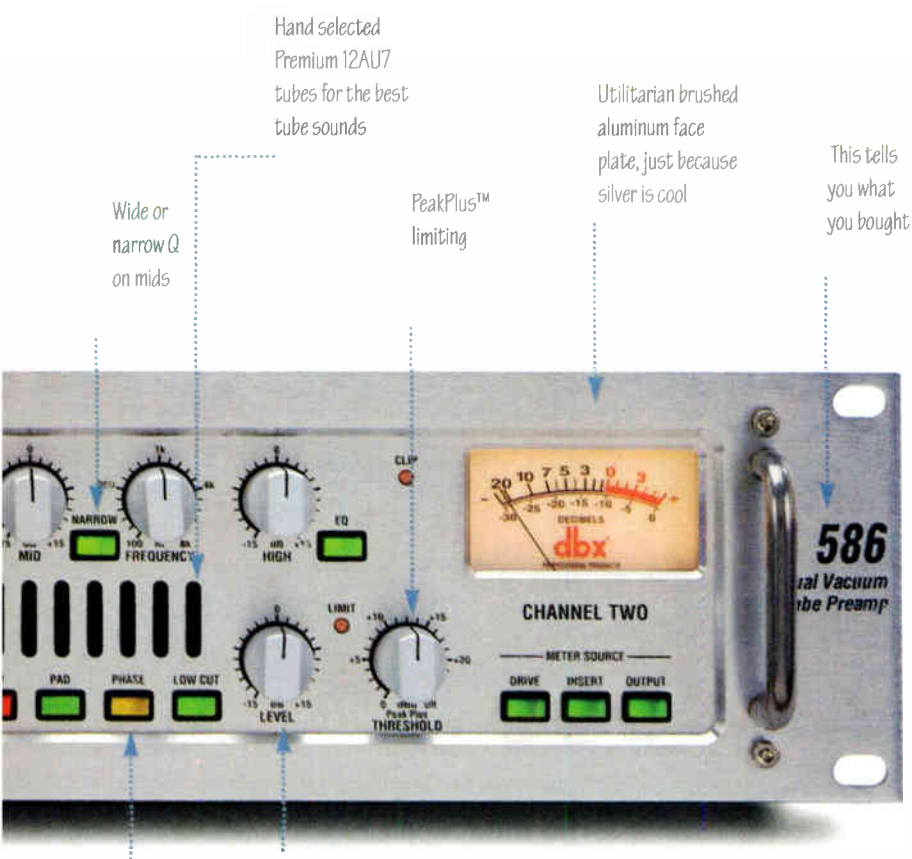
We promise.

Save The Planet

It's The Only Market We've Got.

is only skin deep" nonsense!

SILVER SERIES



dbx has long been known as the leader in signal processing technology, and mic preamps have always been a strong part of that reputation. Our 586 Dual Vacuum Tube Preamp carries the heritage of those past products into the vacuum tube arena. As usual we have left no stone unturned to bring to the 586 all the standard features one could possibly want in a preamp, including custom designed analog VU meters that monitor tube level, insert path or output levels, +48V Phantom Power, 20dB pad, phase invert, and low cut filter. Line/Instrument and mic inputs make the 586 versatile enough to use with virtually *any* source device. Add to this impressive list of standard features extras like a three band EQ with sweepable mids and adjustable mid Q (with hardwire bypass switch), insert loop, and the new patent-pending PeakPlus™ limiting topology and you've got a winner.

All this would be enough, but you've come to expect more from us than just "enough", and we deliver the goods with the 586. Hand-selected and matched premium 12AU7 vacuum tubes ensure ideal triode gain matching, distortion, microphonics and drive characteristics. What does all that mean? It means you get the best tube sound with the most versatility available today.

Have you ever wanted to go directly from the wonderfully warm sound of tube processing to the digital domain without losing that great sound? Well, now you can. With the optional TYPE IV™ Conversion System output, you can capture the essence of tube processing directly into the digital world, without leaving the box. The digital output offers the ability to communicate in either AES/EBU or S/PDIF at 16 or 20bit word lengths. In addition, TYPE IV™ offers the ability to select noise shape algorithms and dither types that best suit your music and your medium. So get down to your pro audio dealer today and hear the beauty for yourself.

dbx Professional Products • 8760 South Sandy Parkway
Sandy UT 84070 • Phone (801) 568-7660 • Fax (801) 568-7662
email: customer@dbxpro.com • URL: http://www.dbxpro.com
A Harman International Company

dbx® PROFESSIONAL PRODUCTS

FROM THE EDITOR

THE MAN BEHIND THE SPELL

On a rainy November night in 1979, I attended a press screening of *Apocalypse Now* at San Francisco's Northpoint Theater. Two years out of grad school in motion picture production, I was juggling a number of film-related jobs: writing for a film magazine, working freelance 16/35mm film editing/sound design gigs from my home edit suite and occasionally doing installs for theaters upgrading to Dolby Stereo. With seven years' experience as an IATSE journeyman, I wasn't exactly a film novice, but I was absolutely floored by what I experienced that night. Perhaps my response to *Apocalypse Now* wasn't that much different from reviewers in other eras responding to *Potemkin*, *Citizen Kane* or *The Seventh Seal*.

Certainly the superb cast, Francis Coppola's direction, lush cinematography and a complex script (which drew heavily from Joseph Conrad's *Heart of Darkness*, adding allusions to T.S. Eliot's "The Hollow Men," to create a cohesive statement about the insanity of modern war) all contributed to the project's success. But the film's brilliant use of audio, from the opening hotel room sequence to the murky, quiet cave in Kurtz's compound, was spellbinding, especially in 6-channel 70mm. The man who wove that spell was Walter Murch.

Of course, Murch's career didn't start with *Apocalypse Now*—ten years earlier, he had moved to San Francisco to work with Coppola and George Lucas in founding what later became American Zoetrope. He has not only been a contributor to some of the most influential films in the past 30 years (*The Godfather I/II/III*, *American Graffiti*, *The Conversation*, *Julia*, *Apocalypse Now*, *The Right Stuff* and *The English Patient*), he has also, in many cases, been able to cross the line to provide both sound and picture editing. In fact, he won two Academy Awards in 1997 (for Film Editing and Best Sound) for his outstanding work on *The English Patient*.

Yet throughout his career, Murch has never let technology—or the lack of technology—get in the way of the creative process. Unsatisfied with the quality of artificial ambience (plates, spring reverbs) in the pre-digital days, Murch would occasionally play a sound in a desired acoustical space, re-record the playback and then use that new wet track in combination with the original sound to provide the right ambience in his mix. Murch's body of work illustrates how essential it is to find a way to get the job done with the tools you have.

And from their decades of experience in surround mixing, there is much we can learn from our fellow engineers working in film, especially as surround sound becomes more commonplace in music releases. In keeping with our annual NAB issue theme, Tom Kenny talks with Murch about his distinguished career and his practical—and always creative—approach to sound for film. Also in this issue, *Mix* looks at systems for transferring audio over long distances and examines some new solutions for upgrading your older console for surround sound mixing and monitoring. The tools may change, but the creative process provides the spark.

Anyone walking the multitudinous halls of new products at NAB can see that our industry is driven by technology. However, owning a fine microphone doesn't transform the owner into a George Martin any more than holding an expensive camera turns anyone into an Ansel Adams. In audio, as in any other endeavor, creativity wins out over technology every time.

See you in Las Vegas,

George Petersen

BPA INTERNATIONAL SPARS ABP American Business Press

Mix magazine is published at 6400 Hollis St. #12, Emeryville, CA 94608 and is ©1998 by Intertec Publishing Corp. *Mix* (ISSN 0164-9957) is published monthly. One year (12 issues) subscription is $46. Single copy price is $4.95, back issues $6.00. **Send subscription applications, subscription inquiries, back issue requests 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. Periodical class postage paid at Oakland, CA, and additional mailing offices. Editeur Responsable (Belgique), Christian Desmet, Vuurgatstraat 92, 3090 Overijse, Belgique. This publication may not be reproduced or quoted in whole or in part by printed or electronic means without written permission of the publishers. Printed in the USA. Canadian GST #129597951; Canada Post International Publications Mail Product (Canadian Distribution) Sales Agreement #0478733.

NATIONAL EDITORIAL, ADVERTISING AND BUSINESS OFFICES. 6400 Hollis St #12, Emeryville, CA 94608. (510) 653-3307. FAX: (510) 653-5142 Web site: www.mixmag.com PHOTOCOPY RIGHTS: Authorization to photocopy items for internal or personal use of specific clients is granted by Intertec Publishing, provided that the base fee of U.S. $2.25 per copy, plus U.S. $00.00 per page is paid directly to Copyright Clearance Center, 222 Rosewood Dr., Danvers, MA 01923 USA. The fee code for users of th s Transactional Reporting Service is ISSN 0164-9957/1997 $2.25 + $00.00. For those organizations that have been granted a photocopying license by CCC, a separate system of payment has been arranged. Before photocopying items for educational classroom use, please contact CCC at 508/750-8400 Organizations or ind viduals with large quantity photocopy or reprint requirements should contact Sherry Bloom at (510) 653-3307 Microfilm copies of Mix are available by calling/writing UMI, 300 N Zeeb Rd., P O. Box 1346 Ann Arbor, MI 48106-1346; 313/761-4700. 800/521-0600.

Founded in 1977 by David Schwartz and Penny Riker Jacob

THE TAPE FORMERLY KNOWN AS AMPEX.

QUANTEGY
Professional Audio Media

800 Commerce Dr., Peachtree City, GA 30269 Phone: 800.752.0732 Fax: 800.628.0535 www.quantegy.com

CIRCLE #005 ON PRODUCT INFO CARD

FEEDBACK

ROCKIN' IN MONITOR WORLD

I thought Mark Frink's article entitled "Monitor Lessons" (Jan. '98) was great, and I am including it as required reading for the training program at my company. Though these days I either mix FOH or manage special events, this past fall an old friend who was in a jam due to a last minute tour asked me to mix monitors for a rock festival.

We had three days with loud "Top 10" rockers, and only one of the nine acts brought their own engineer. At the end of the weekend, I figured out that it had been six years since I had mixed "rock 'n' roll" monitors. I had made notes after the weekend to include/update for my monitor mixing class, but Mark was able to produce an article covering the same points. Thanks for saving me the time, and keep up the good work!

Bill Magod
Advanced Concert & Event Resources
Princeton, N.J.

PSYCHOACOUSTICS, EH?

Stephen St.Croix's article on surround sound ("The Fast Lane," Jan. '98), 3-D smells and various ways to annoy the neighbors was very interesting. His efforts to search the globe (or at least North America) were valiant, but he overlooked technology that is in the research stage from, of all places, the Canadian Military.

There is a department in the bowels of the Downsview Airforce Base in Toronto that focuses entirely on environmental medicine. They develop better night vision equipment for the military personnel, test the effects of atmospheric pressures and extreme temperatures on the human body and, among other things, they develop better ways to communicate with each other while operating things like tanks, helicopters and tactical fighter jets.

What they are trying to perfect is a way to electronically harness psychoacoustics. The scientists know that humans can distinguish many different sounds and process that information as useful or not useful. What they want to accomplish is a way to have controllers, field marshals and other military personnel speak to a pilot all at the same time. By wearing headphones, the pilot will hear the crew from the flight deck in a front left image and a weapons specialist in a rear image all at the same time.

Their discovery is not new, but their way of determining the various delays required to make this image are quite amazing. It only makes sense that eventually this technology will find its way to the consumer marketplace and we will all be able to listen to our motion pictures and television shows as nature intended...psychoacoustically!

In my opinion, the 5.1 solution is a great way to offer a 3-D sonic image, but it's basically nothing more than a more complicated Quadraphonic system (5.1 is easier to say than Pentaphonic). So let's get back to two sources (left and right), which tax dollars (at least deflated Canadian tax dollars) are already working on.

I look forward to the day when I can reclaim my living room from a transducer showroom and still get the natural feel of explosions and space ships from all around.

John McArthur
Audio Design Engineer
Olesen (A division of Mattheus Studio Equipment Group)
Hollywood, Calif.

THE MEEK SPEAK

I have been a sound engineer for about 14 years and am now a worship leader at a church in Arizona. I've read *Mix* off and on for a number of years, and there is a tremendous market out here that both manufacturers and retailers are missing. In most of your articles, high-end merchandise gets most of the print, but churches and small bands are searching for quality equipment for the best prices. I have talked to many other worship leaders and sound people, and they all have the same complaint/question: Where do we get the best bang for our buck?

Most of the major dealers I have talked to don't like small buyers. They seem to want the "big" score. I personally know of a number of churches that have talked about getting together and making an equipment buy so they would get better service and prices. What is the small buyer to do? Who is reaching out to this market? What dealers are willing to sacrifice big profit margins for larger volume? For every big group or studio there are 100 to 200 smaller groups and studios needing access to good-quality equipment.

As you can tell, this is an area that I feel deeply about. Please let me know if you have any suggestions or ideas, or if you know of any companies that are geared to service these groups.

Steve Horsey
horsey@infomagic.com

THANKS FROM DOWN UNDER

As an industry pro of 26 years (and counting), I've always enjoyed getting *Mix* from the stands when it arrived here in Australia. Since it's been available online, it's even better because, for once, I'm up to date! I have some trainees at the venue I'm based at, and I always download and print a variety of the contents for them as a learning tool. It's much appreciated; they do learn, and they ask questions. I'm happy to see them enjoying what they're doing. Even better, they work their butts off with me! So this is a thank you to all of you for a great magazine. Keep it up. You have a quality item.

Paul Close
Perth, West Australia

MIX TIPS

I just wanted to say thanks to Maureen Droney for the great article on Tom Lord-Alge in the Jan. 1988 issue of *Mix*. This was one of the most insightful interviews I have read in a long time. The article gave me some great ideas to use when I go in to mix a personal music project of mine in the upcoming months.

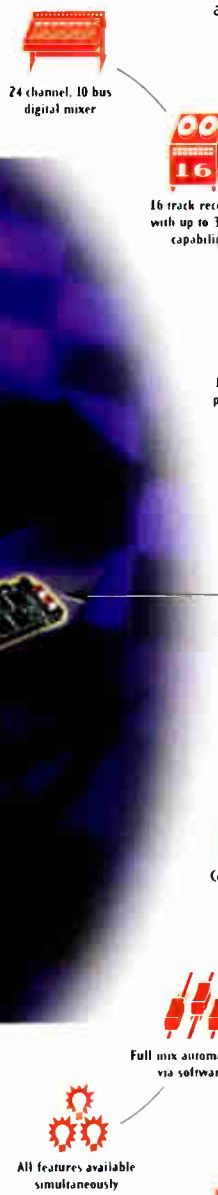
Dwight Okahara
Westwood Studios

Send Feedback to Mix, *6400 Hollis St. #12, Emeryville, CA 94608; fax 510/653-5142; or mixeditorial @cardinal.com.*

The power of an 02R digital mixer and 16-track hard disk recorder

(cleverly disguised as a $1,000 computer card).

Imagine having the processing power of the 02R digital recording console on a computer card. When you install the card in your computer, you've got a **24-channel, 10-bus digital mixer** with all the mixing power of the acclaimed 02R. Pretty great. Imagine this card also gives you **16 tracks of tape-less recording with up to 32-bit resolution**. And works out-of-the-box with the industry's most popular PC and Mac recording software*. Imagine you can have all this for **under $1,000**. Yamaha proudly presents the DS2416 Digital Mixing Card. The star component in the **Yamaha DSP Factory**—a complete digital recording and mixing system inside your computer. For details, call 800-937-7171 ext 662.



DSP FACTORY
YAMAHA®

DSP Factory is supported by:

SONIC FOUNDRY · cakewalk · emagic · Musicator · SEK'D · Steinberg

CIRCLE #006 ON PRODUCT INFO CARD

CURRENT

WELCOME TO NAB

NAB98 takes place this month from April 4-9. Held in Las Vegas and produced by the National Association of Broadcasters, this event covers the convergence of broadcasting, multimedia and the Internet, audio and video communications, and telecommunications. This year's expo features 1,300 exhibitors and 150 sessions in 11 conferences. Complete NAB98 conference and exhibit details are available on the NAB Web site at www.nab.org/conventions, or through fax-on-demand by calling 732/544-2888.

MELIA PEAVEY, 1955-1998

Melia Peavey, president of Peavey Electronics Corp. died Saturday, March 7, of a cardiac arrest caused by a diabetic coma.

The program for the funeral service carried a tribute written by her husband, Hartley: "Melia began her career at Peavey in 1972 at the very young age of 17. Her knowledge of the world of business and especially the music industry continued to grow by leaps and bounds. Beyond her mastery of functions of the business, she is responsible for the major support that Peavey gives to the whole field of education and was the heart of the movement to protect and care for abused and neglected children."

Memorial donations may be made to the Peavey House, the home Melia founded for abused and neglected children: P.O. Box 2898, Meridian, MI. 39302.

DIGITAL DUBBERS UPDATE

Representatives from leading developers of that elusive technology, the digital dubber, gathered in front of a packed audience of industry professionals at a January 27 meeting of the Los Angeles Section of the AES and agreed that there are problems in moving toward a common media format and file structure.

Chaired by Jay Palmer of Universal Studio's Post Production Sound Department (see October *Mix*, page 248), attendees were treated to a quick overview of the salient features and functions of the current offerings: Akai 8-track DD8 (of which there are currently close to 600 in use worldwide); Tascam MMR-8 8-track recorder and the MMP16 16-channel playback unit (reportedly receiving its first public scrutiny); HHB/Genex GX8000 8-track/24-bit/48kHz or 4/24/96 MO-based system; Fairlight 24-track DaD Digital Audio Dubber (100 sold to date) and MFX3-plus Recorder; plus Sony ADSG's (Advanced Digital Systems Group) System 5000 16-channel/24-bit recorder and enhanced-quality Iomega Jaz 1- and 2GB drives and media. (Missing from the proceedings were Otari, whose PD-60 dubber is scheduled to be unveiled midsummer, and Dolby, whose Jaz-based product, Palmer reported, is now on hold in beta.)

While all of the hardware showcased at the meeting is designed to offer plug-and-play convenience of 35mm mag systems, it would appear that questions of media compatibility are only part of the equation. Currently, only one digital dubber—the Tascam MMR-8 (derived from TimeLine's WaveFrame workstation)—offers direct playback of Pro Tools 4.x session files at the drive level; record compatibility to the latter DAW was also promised by the NAB nonvention this month.

And even though, on paper, OMFI offers a great deal of potential in solving both media and file-interchange snafus, it did not escape the notice of many participants that we don't seem to be further down that road than we were a few years ago. OMF Specification 2.0 offers a more complete solution than its predecessors but will need active support from manufacturers—driven by customer needs—to move forward as an industry standard. In the meantime, progress of the proposed AES-31 recommendation for file formats is being closely scrutinized, as are developments in Broadcast .WAV file formats and Grey Matter Mezzo Interchange software.

— Mel Lambert

JIM ISOM, 1940-1998

Jim Isom, senior software engineer for Meyer Sound, died February 10 from heart failure. He was 58 years old.

Isom is remembered for having played a pivotal role in all of Meyer's product development, notably the SIM® System and RMS™.

"Jim was more than a colleague to me; he was a dear friend," said Meyer. "He will be sorely missed by everyone at the company."

Isom is survived by his wife, Shelly. Friends who wish to make donations in memory of Isom may send a check payable to Greenpeace Fund at 1436 U Street Northwest, Washington, DC 20009. Please indicate that you are sending your donation in memory of Jim Isom and that you want a gift acknowledgment (with no cash value mentioned) to be sent to Shelly Isom c/o Meyer Sound Laboratories, 2832 San Pablo Ave., Berkeley, CA 94702. All donations are tax-deductible.

STUDIOPRO '98 ANNOUNCES PARTICIPANTS

StudioPro '98, to be hosted by *Mix* on June 25-26 at the New York Marriott Marquis, has announced an extensive lineup of moderators and panelists. "We're very pleased to have the best in the industry participating in this event," said Hillel Resner, conference director. "Attendees will have the opportunity to both listen and talk to some of the foremost experts on a wide variety of issues confronting audio professionals."

Moderators for StudioPro '98 seminars will include: Ken Hahn of Sync Sound, N.Y.; Dean Winkler of Post Perfect, N.Y.; *Mix* editor George Petersen; and *Mix* contributing editors Mel Lambert, Dan Daley, Paul Lehrman, Phil De Lancie and Bob Hodas.

Nearly 50 panelists had been confirmed as of March 1, including Dave Amlen, Sound on Sound Recording; Russ Berger, Russ Berger Design; Randy Ezratty, Effanel Music; Peter D'Antonio, RPG Diffusor Systems; Peter Fish, National Sound; John King, Chung King Studios; Peter Chaikin, Yamaha; Bob Ludwig, Gateway Mastering; George Massenburg, engineer/producer and president of GML Inc.; Kooster McAllister, Record Plant Remote; Roger Maycock, Tascam; Ed McDermott, Avid Technology; Howard Schwartz, Howard Schwartz Recording; David Smith, Sony

—CONTINUED ON PAGE 16

There's Only One Way To Get The Sound You Want...

Introducing the Neumann TLM 103

Regardless of your recording gear, the single best way to improve your sound is with Neumann microphones. Utilizing a large-diaphragm capsule derived from our world-standard U 87, our new TLM 103 gives you the full, rich, warm sound that Neumann is famous for. It has the lowest self-noise of any condenser mic in the world – important in today's low-noise digital recording environment. And with our new TLM 103, owning a Neumann has never been easier...for less than $1000 US, you can have the most important piece of equipment you'll ever own.

Upgrade to the real thing – Neumann... the choice of those who can hear the difference.

NEUMANN-MICROPHONE

Neumann|USA
One Enterprise Drive • PO Box 987, Old Lyme, CT 06371 Tel: 860.434.5220 • FAX: 860.434.3148
West Coast: Tel: 818.845.8815 • FAX: 818.845.7140
Canada: Tel: 514-426-3013 • FAX: 514-426-3953 • Mexico: Tel: 52-5-639-0956 • Fax: 52-5-639-9482
World Wide Web: http://www.neumannusa.com

CIRCLE #007 ON PRODUCT INFO CARD

The only 24x4 mixer with

Built with advanced technology & premium components,

SR24•4

After you've gone store-to-store, checking out mixer after mixer, they can start to appear pretty much alike.

But if you could "look under the hood," you'd discover that all 4-bus mixers aren't created equal in many critical areas. These important differences can affect sound quality, noise floor, mix head room and durability.

Greg Mackie initially intended the SR24•4 to be a very competitively priced live sound mixer.

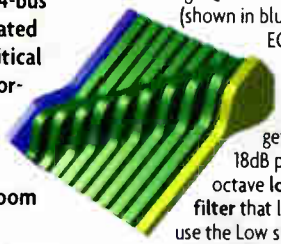
But having been a Musician On A Strict Budget himself, he knew that few bands have the bucks for a separate studio mixer. So instead of cutting corners, he made the SR24•4 a "downsized" Mackie 8•Bus with much of its circuitry and many of the same cool features.

The result is a compact console with premium mic preamps, natural-sounding equalization, ultra-low noise floor and EIGHT tape outputs. Just the thing for recording demos — or whole albums — on a limited budget.

Call toll-free for a comprehensive tabloid brochure or log onto our Web site for the full story of the SR24•4 and its big brother, the SR32•4. They look good outside. But more imporant, they SOUND good inside.

Flexible, creativity-enhancing equalization. Mono mic/line channel's swept midrange has a super-wide 100Hz-8kHz sweep range (and a broad, natural -sounding 1. 5-octave wide curve (shown in green below). Low shelving EQ is fixed at 80HZ (shown in blue); high EQ is at 12kHz (yellow). Plus you get a sharp, 18dB per octave **low-cut filter** that lets you use the Low shelving EQ to enhance vocals, floor toms, etc. without boosting unwanted mic thumps and stage rumble.

VERY useful.



In-place stereo solo on channel strips & sub buses. Master section has solo level control & AFL/PFL global mode switch.

60mm logarithmic-taper faders. Many conventional faders "give up" about ¾ of the way down. Fades sound sorta like this:

LA LA LA LA LA LA LA LA LA LA.....?

The log-taper faders on the SR24•4 and SR32•4 have extra screened resistance elements that provide a linear-sounding fade, throughout the full travel of the control. Something like this:

LA LA LA LA LA LA LA LA LA LA

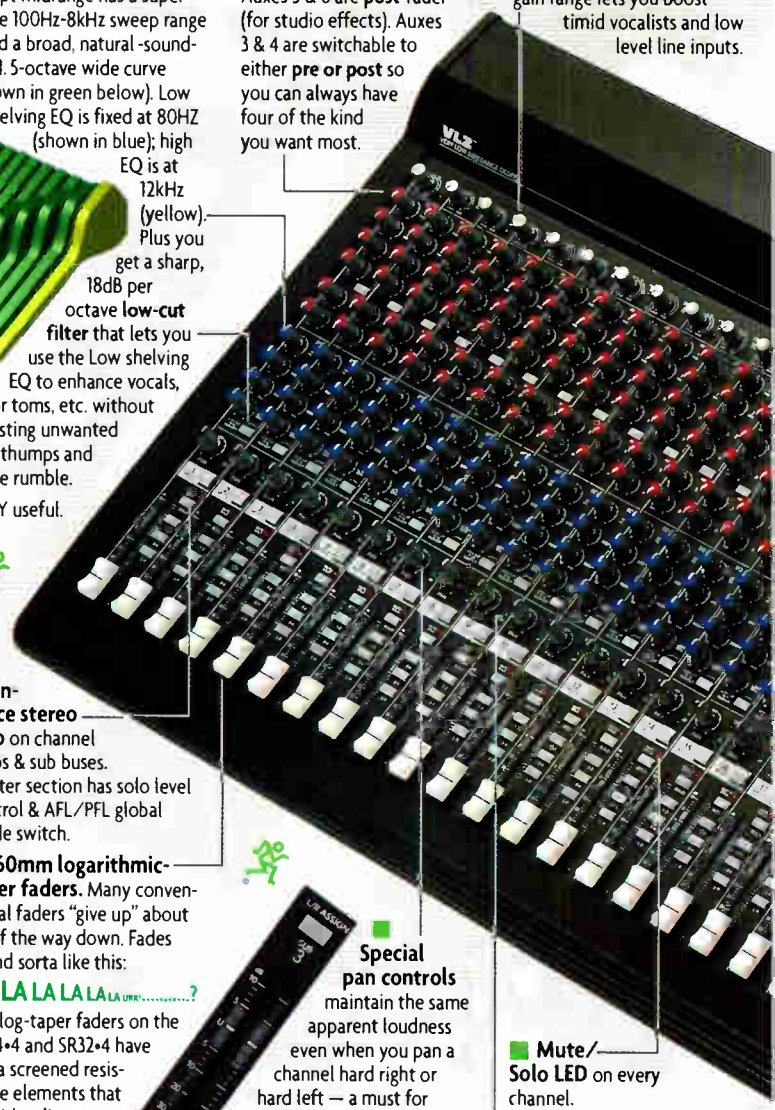
Your LA LAs may vary.

Special pan controls maintain the same apparent loudness even when you pan a channel hard right or hard left — a must for accurate studio mixes.

Super-twitchy Signal Present LEDs on every channel are so responsive that you can differentiate between vocals, rusty chainsaw samples, percussion, etc. All channels also have an overload LED.

Six aux sends per channel. Auxes 1 & 2 are **pre**-fader (for live sound monitors). Auxes 5 & 6 are **post**-fader (for studio effects). Auxes 3 & 4 are switchable to either **pre or post** so you can always have four of the kind you want most.

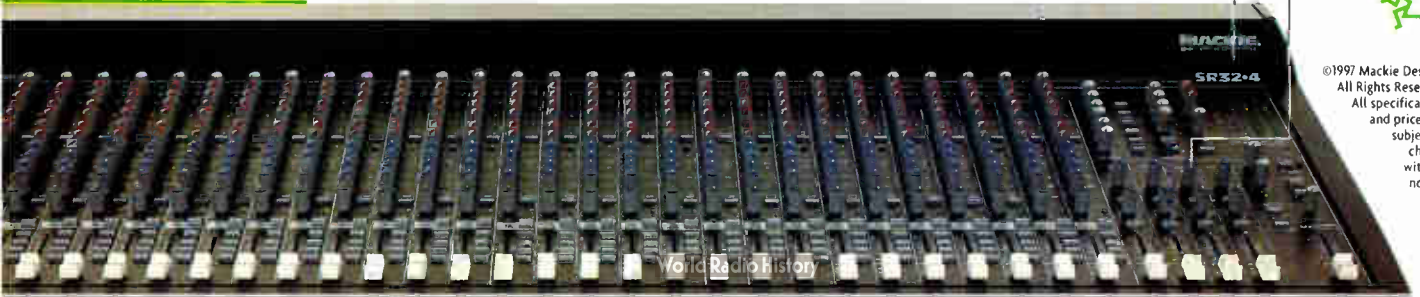
Trim control has a 10dB "virtual pad" that tames ultra-hot line inputs; 60dB total gain range lets you boost timid vocalists and low level line inputs.



Mute/Solo LED on every channel.

Ultra-high "AIR" EQ on submix buses centered at 16kHz. As one magazine review put it, *"The AIR controls turned out to be effective in adding top end clarity... it's almost an 'exciter' kind of effect, except without the harshness."*

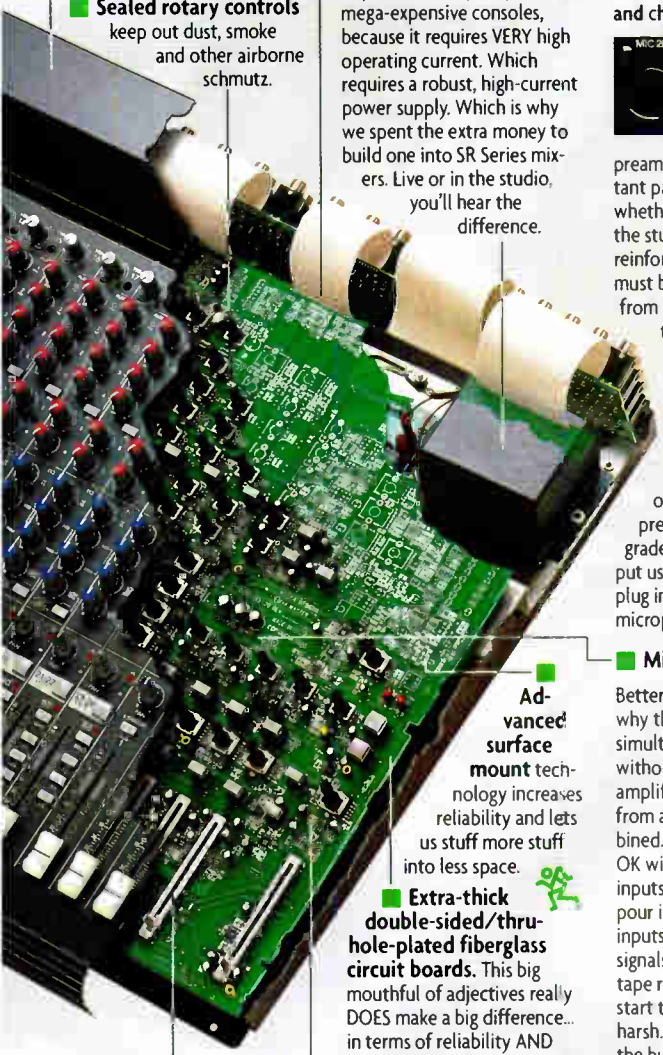
Also available in a family-size 32-channel model!



SEE US AT NAB SANDS BOOTH #M8138

enough guts to strip in public.

the SR24•4 is equally at home in the recording studio or on the road.



Solid, cold-rolled steel chassis. Not aluminum or plastic. Monocoque design resists flexing and bending.

Gold-plated internal interconnects remain corrosion free for perfect electrical contact, even if used repeatedly in industrial sections of New Jersey.

Sealed rotary controls keep out dust, smoke and other airborne schmutz.

Large, high-current internal power supply lets us use VLZ® (Very Low Impedance) circuitry at critical points in the SR24•4 and SR32•4. **VLZ®** significantly reduces thermal noise and crosstalk by using extremely low resistor values in certain circuits. This innovative technique is normally only used in mega-expensive consoles, because it requires VERY high operating current. Which requires a robust, high-current power supply. Which is why we spent the extra money to build one into SR Series mixers. Live or in the studio, you'll hear the difference.

Advanced surface mount technology increases reliability and lets us stuff more stuff into less space.

Extra-thick double-sided/thru-hole-plated fiberglass circuit boards. This big mouthful of adjectives really DOES make a big difference... in terms of reliability AND sound quality. The expensive thru-hole plating process maximizes electrical conductivity and eliminates the possibility of intermittant contact. The SR Series' flexible fiberglass main board soaks up downward impacts that would shatter brittle phenolic circuit boards.

Ultra-wear-resistant fader wiper surface derived from automotive sensor technology won't develop "the scratchies" even after years of use.

100% genuine name brand electronic parts throughout. Nuff said.

All inputs and outputs are balanced* to eliminate hum and allow extra-long cable runs (they can also be used with unbalanced connectors). Tight-gripping 1/4" jacks are solid metal; XLR's are genuine Neutrik®s with internal ferrite beads to reduce radio frequency interference. * except RCA-type tape jacks and channel inserts.

Low-noise, high-headroom discrete mic preamps. It can be argued that the preamps are the most important part of a mixer — whether you're recording in the studio or running a sound reinforcement system. They must be accurate and free from coloration...yet be able to handle screaming vocalists and close-miked kick drums without overloading. And, they have to be ultra-quiet. Nowadays, we're not the only ones to claim our mic preamps are "studio-grade." So we invite you to put us to the test. In the store, plug in a good, high-output microphone and a pair of headphones and decide for yourself whose preamps have the most headroom, the least noise and the best sound.

Double tape outputs eliminate repatching during tracking. Okay, we'll be the first to admit that eight buses are a nice feature. But if you're on a tight budget, the SR24•4's "double-bussing" feature is a great solution (and besides, how many times do you REALLY track more than four channels to tape at a time?). Each of the SR24•4/SR32•4's four submix buses feed two different outputs. For example, Sub Bus 1 feeds Tracks 1 and 5; Sub Bus 2 feeds Tracks 2 and 6, etc. Instead of repatching, you route the bus' destination by what tape tracks you put into Record.

Dual headphone outputs with enough level to satisfy even most drummers. And a separate input for a talkback mic (so you don't tie up a mixer channel).

Inserts on all mono channels. Plus submix and main stereo mix inserts, separate control room outputs, extra RCA-type tape inputs and outputs, both 1/4" and XLR stereo outputs, and XLR mono output with its own rear panel level control.

Mix amplifier headroom. The SR24•4's inside story.

Better mix amplifier design is why the SR24•4 can handle 24 simultaneous HOT inputs without distorting. The mix amplifier is where signals from all channels are combined. Some mixers sound OK with just a couple of inputs...but when you pour it on with lots of inputs — particularly signals from digital tape recorders, things start to sound pretty harsh. Backing off on the bus or main faders doesn't help, since the mix amp comes before these gain controls.

The SR24•4 and SR32•4 use Mackie's innovative negative gain mix amplifier architecture. Instead of mixing at unity gain where headroom is quickly used up, our mix amps operate at –6dB. At this negative gain level, SR Series mixers are capable of summing FOUR TIMES the number of channels before clipping. That nets out at DOUBLE the amount of mix amplifier headroom compared to any competitive mixer. It's a critical difference that you can plainly hear.

The SR Series in a proverbial nutshell.

	24•4	32•4
Total Channels	24	32
Mono Channels	20	28
Stereo Line Inputs	2	2
Mic Preamps	20	28
Submix Buses	4	4
EQ (mono chs.)	12kHz HF	
	80Hz LF	
	100-8kHz Swept Mid	
	18dB/octave low-cut filter	
EQ (stereo chs.)	12kHz HF	
	80Hz LF	
	800Hz Lo Mid	
	3kHz Hi Mid	
Aux Sends/Ch.	6	6
Stereo Aux Returns	4	4
Tape Outputs	8	8
Channel Inserts	20	28
Width (inches)	31.0	39.25

Below: A few of the 500+ folks who build the SR Series, our other mixers, amps and studio monitors at Mackie Designs in Woodinville, Washington, 20 miles northeast of Seattle.

MACKIE

In the U.S., phone 800/898-3211 • Outside the U.S. 425/487-4333
Web: www.mackie.com • E-mail: sales@mackie.com • NASDAQ: MKIE

CIRCLE #008 ON PRODUCT INFO CARD

INDUSTRY NOTES

Stuart Demarais was promoted to sales director at **Solid State Logic** (Oxford, UK). During his seven years with the company, he has held a number of sales management and marketing positions. **Michael Mueller** was named vice president of broadcast and post-production for SSL North America, East Coast. Mueller recently served as Eastern Regional sales manager for AMS/Neve...At Old Lyme, CT-based **Sennheiser, Joe Ciaudelli** was promoted to director of marketing, and **Bruce Mosca** was promoted to RF applications engineer...**Audix Corporation** moved to a larger manufacturing facility at 9400 SW Barber St., Wilsonville, OR 97070. The company also has a new mailing address: PO Box 4010 Wilsonville, OR, 97070. The sales phone number remains 800/966-8261; the new main line is 503/682-6933; fax 503/682-7114. Audix also announced the addition of **John Seda** to head the company's artist relations program...**Simon Blackwood** was appointed managing director at **Focusrite** (Bucks, UK). **DM2J Audio Solution**, meanwhile, was appointed as Focusrite's exclusive distributor for France...Santa Monica, CA-based **Apogee Electronics Corporation** announced the appointment of **Paul Rice** as president of the company. Founder **Betty Bennett** remains in her current position of CEO...**John Spencer** joined **Otari Corporation of America** (Foster City, CA) as Southeast regional sales manager...**Mackie Designs** news: The Woodinville, WA-based company appointed **Gregg Perry** director of advertising and public relations. The company recently entered into an OEM supply agreement with **Radio Cine Forniture** S.P.A. (RCF) of Reggio Emillia in northern Italy. Mackie also brought aboard **Rick Bos** as product manager for the analog mixer, speaker and power amp product groups...**Meyer Sound** (Berkeley, CA) hired **Pablo Espinosa** as customer service manager and **Stewart Bennett** as regional sales rep for the Midwest region...**David Foley** was named vice president of engineering at **Antex Electronics Corporation** (Gardena, CA), and **Leslie Wagner** was appointed director of marketing...As of February 1, the microphones formerly known as **Bruel & Kjaer** will be redesignated as **DPA Microphones**. Danish Pro Audio has been B&K's worldwide distributor since 1992. Bruel & Kjaer will continue to manufacture test and measurement equipment. For additional info on DPA call 45/48/14-2828...**BSS Audio** (Nashville) named **Beth Stewart** sales and marketing administrator...**Benson Audio Labs** moved to 417 Washington Rd. #320, McMurray, PA 15317; phone 412/914-0575; fax 412/914-0571; e-mail bensonaudiolabs@prodigy.net...Los Angeles-based **George Masssenburg Labs** (GML) appointed HHB Communications as its exclusive UK distributor. Meanwhile, **HHB** appointed **Hawkins-Frederickson Associates** (HFA) Inc. as its Florida manufacturers' representative firm...**THAT Corporation** (Marlborough, MA) tapped **William "Win" Craft** for vice president of marketing and sales...**Spirit By Soundcraft** moved its North American headquarters to 4130 Citrus Ave., Ste. 9, Rocklin, CA 95677; phone 916/630-3960; fax 916/630-3950...Petaluma, CA-based **Furman Sound Inc.** expanded the territory of rep firm **DiModica and Associates** (Florida rep) to include Georgia, North Carolina, South Carolina, Alabama, Mississippi and eastern Tennessee....**Joemeek** (Torrance, CA) presented several rep awards at the NAMM show. Rep of the Year went to **Quest Marketing** (Tampa, FL); Top Gun went to **AMH Sales Company** (Los Angeles); Most Improved Territory went to **Devin's & Associates** (Fredrick, MD); and Quota Buster was received by **Eaton Sales & Marketing** (Binghamton, NY). ■

—FROM PAGE 12, CURRENT

Music Entertainment; John Storyk, Walters/Storyk Design; and Mark Yonge, Solid State Logic.

Also participating as part of producer forums being sponsored by the Music Producers Guild of the Americas are renowned producers Barry Beckett, Ed Cherney, Ethel Gabriel, Josh Leo, Tommy LiPuma, Arif Mardin, Tony Visconti, Don Was and others.

To receive a brochure and registration materials for StudioPro '98, fax Daniela Barone at 510/653-5142.

NEW WEB SITES

Switchcraft Inc.'s recently enhanced Web site provides information on new products, sales office locations, upcoming trade shows and includes the contents of the 336-page Engineering Design Guide and a complete product cross reference. Visit www.switchcraft.com.

Spirit by Soundcraft's new site, www.spiritbysoundcraft.com, provides technical support information, current U.S. pricing and downloadable user manuals.

Audio-Technica's site at www.audiotechnica.com features a "Guide to A-T Products," a "Using A-T Products" area, news and corporate information.

UK Cybersearch launched a free Web site for all unsigned musicians around to world to promote their own music. The site offers a Web page for each musician or band, including two tracks of the artist's music, band photo, bios and a chance to sell demo tapes or CDs. It features Real Audio and MP3 technology and is located at www.unsigned-music.com.

Ampeg's new site, www.ampeg.com, features reference guides for each of its amplifiers, showing panel graphics, complete features and functions. Also on view is artist information and a monthly giveaway.

CORRECTIONS

Stephen Kay's e-mail address was printed incorrectly in the February issue ("The Project Studio," Keyboard Wizard). The address is sk@musiknetix.com.

Our February story on studio wiring omitted Whirlwind patchbays. Check them out at www.whirlwindusa.com. ■

If you already know these interesting facts about Akai Digital Recorders . . .

8 Track simultaneous disk recordi
8 machines • 18 bit ADC • 64X ove
digital mixer • Dynamic MIDI mix
S/PDIF digital I/O • 50 pin SCSI
(DR 8) • 8 in 16 out + ste
Varispeed playback
Machine control • A
input • Switchable
ADAT interface -
$299 • 2nd SCSI
parametric EQ
destructive editi
• 20 bit DAC • 8
Built-in mic prea
1/4" TRS in/ou
Balanced input
DR8, DD8 and
50-pin SCSI p
Auto punch I
$299 • S.M.P
controller - $7

xpand to 128 tracks • Link up to
nternal processing • 16 channel
oint autolocator • AES/EBU and
evels • 8 in 8 out +stereo master
ral with fine resolution mode •
MIDI automated mixing • MIDI
ms • Word clock/video sync
"new" SVGA card - $699 •
- $299 • BiPhase film sync -
EQ - $550 • 16 channel 3 band
disk recording • Non-
ADC • 64X oversampling
MIDI mix automation •
pin SCSI port • Balanced
t + stereo master (DR16) •
yback • Compatible with
ntro • Adjustable preroll •
10db line levels •
MIDI interface -
299 • MT8 MIX
EQ - $699 •

Maybe you'll be interested in these new facts.

8 Track DR8- $1995
16 Track DR16 - $2995

SEE US AT NAB BOOTH #3622

AKAI DIGITAL

FOR MORE INTERESTING FACTS AND GREAT NEWS ON PRICING -
CONTACT YOU NEAREST AUTHORIZED AKAI DEALER OR THE AKAI MUSICAL INSTRUMENT CORPORATION
4710 Mercantile Dr • Ft. Worth, TX 76137 • Phone 817-831-9203 or shoot off a Fax to 817-222-1490
e-mail akaiusa@ix.netcom.com
In Canada contact Power Music Marketing • 3249 Bloor St. W. #24 • Toronto, Ontario M8X 1E9 • Ph. 416-234-1226 • Fax 416-234-0824

CIRCLE #005 ON PRODUCT INFO CARD

The Panasonic DA7 Mixer. Taking Digital Further.

1-Step Functionality
24 Bit A/D and D/A
Moving Faders
Surround Sound
Automation & Memory

Inspiration can strike you in the strangest places. But, when you've been dreaming of the ideal digital a/v mixer for as long as we have, you jot it down on the nearest piece of paper. Well, the end results of that inspiration have come to pass...Panasonic introduces the RAMSA WR-DA7 digital mixer, and sets an entirely new standard in quality, flexibility, affordability, ease-of-use and value.

TAKE COMMAND... NOW

32 inputs and 6 auxiliary send/returns (for a total of 38 inputs), 8 bus, 24 bit converters, moving faders, instantaneous recall of all settings, surround sound... you'd think nothing this fully featured could be this easy to use or this affordable... but it is!

GREAT SOUND

32-bit internal processing combined with 24 bit A to D and D to A converters, yield an incredible 110 dB dynamic range, putting the DA7's sonic quality in a class by itself.

MAXIMUM FLEXIBILITY

Packed into the DA7 are sixteen analog mic/line inputs and individual access to channels 17-32 through channel flip buttons located above each fader.Twenty faders do triple-duty as level controls for channels 1-16, 17-32, or Aux sends 1-6, Aux returns 1-6, and buses 1-8. We've even added an additional fourth layer, which includes MIDI faders.

EASY-TO-USE

The DA7 features automated, logical layout and intelligent design. Access a channel by pushing its select button, and all parameters for the channel: EQ, bus and aux assignments, and dynamic/delay settings come up on the large backlit LCD screen. To access individual parameters, just touch the appropriate knob in the console's master section. This calls up the sub-menu on the LCD screen and zooms in on the appropriate function. No digging through menus or getting lost in functions; just select... and you're there.

THE POWER TO CONTROL

The EQ section offers four true parametric bands active on every channel, with the top and bottom bands selectable from peaking or shelving, or they can be high and low pass filters, respectively. The frequency bands are overlapping, with the top two bands ranging from 501Hz to 20kHz, and the bottom two bands ranging from 20Hz to 20kHz. Boost or cut for these bands are adjustable in 1/2 dB steps to + or - 15 dB. The bandwidth is adjustable from 0.1 octave to 10 octaves. The DA7 is so full featured, even the Aux returns feature a 2 band parametric equalizer. The dynamics section offers you a choice of a Gate/Compressor/Limiter or an Expander on every channel with variable attack and release times and levels for threshold and ratio. A Delay of up to 300ms is available on every channel. In addition, 50 EQ and 50 Dynamics memories can store your favorite settings for instant recall.

RAMSA

SURROUND SOUND AT YOUR FINGERTIPS

The DA7 is equipped to mix 5.1 channel surround through its buses, so you don't have to tie up auxes, controllable by three modes for any channel or combination of channels. All modes provide full dynamic control of panning, and can be copied, stored, and transferred to any other channel. An optional MIDI joystick gives yet a fourth method.

MORE FEATURES THAN WE HAVE ROOM TO TELL YOU ABOUT

The DA7 features four up/down/left/right cursor keys that are switchable to output MIDI Machine Control commands to MDMs, sequencers, or workstations. Data entry is done through the parameter dial or alphanumeric keypad. There's an undo/redo button, solo-mode set, and built-in talkback mic. Honestly, the DA7 is so feature rich, (but still easy to use) that we don't have room to describe it all here. You'll have to test drive it in person!

TAKE ON THE WORLD

The rear panel has 16 analog mic/line inputs (8 XLR with individual software-switched phantom power, and 8 with TRS); 16 channel inserts (pre A/D); and 6 auxiliary send/return jacks (1-2 use S/PDIF; the rest, +4dB 1/4inch connectors). Analog outputs include +4dB balanced master outs with XLRs; +4dB balanced record outs on TRS 1/4inch jacks and two +4dB monitor outs on TRS balanced jacks. Digital I/O, via XLR connectors is switchable between AES/EBU and S/PDIF. The rear panel also offers MIDI In and Out, word clock I/Os, plus both a 9-pin RS-422/485 serial port and PC port for Mac/Windows with software support for both, a 1/4 inch footswitch jack for controlling talkback on/off or automatic punch in/out for automation, and a D-15 subconnector for the optional meter bridge.

TAKE IT EVEN FURTHER

Two expansion-card slots allow connection of recorders with ADAT Lightpipe, TASCAM TDIF, and AES/EBU (switchable to S/PDIF) interfaces, with any of the audio cards fitting into any slot. A fourth card provides 8 more analog inputs/outputs via a D-25 subconnector. The third expansion-card slot can be used 3 ways:

- Connect 2 DA7's together with true bi-directionality
- Replace analog inputs 9-16 with digital inputs
- Digital inserts across the 8 buses, six Auxes, and L/R stereo out. An option card provides SMPTE and Video Sync input.

WHEW!

Panasonic worked overtime to provide so much creative power and flexibility in such an affordable package. We can't possibly show all you can do with the DA7 on paper, so experience it yourself at your Panasonic RAMSA dealer.

Panasonic

Broadcast & Digital Systems Company

FOR MORE INFORMATION CALL:

1-800-777-1146

I KNOW EVERYTHING

WELL, I DID...

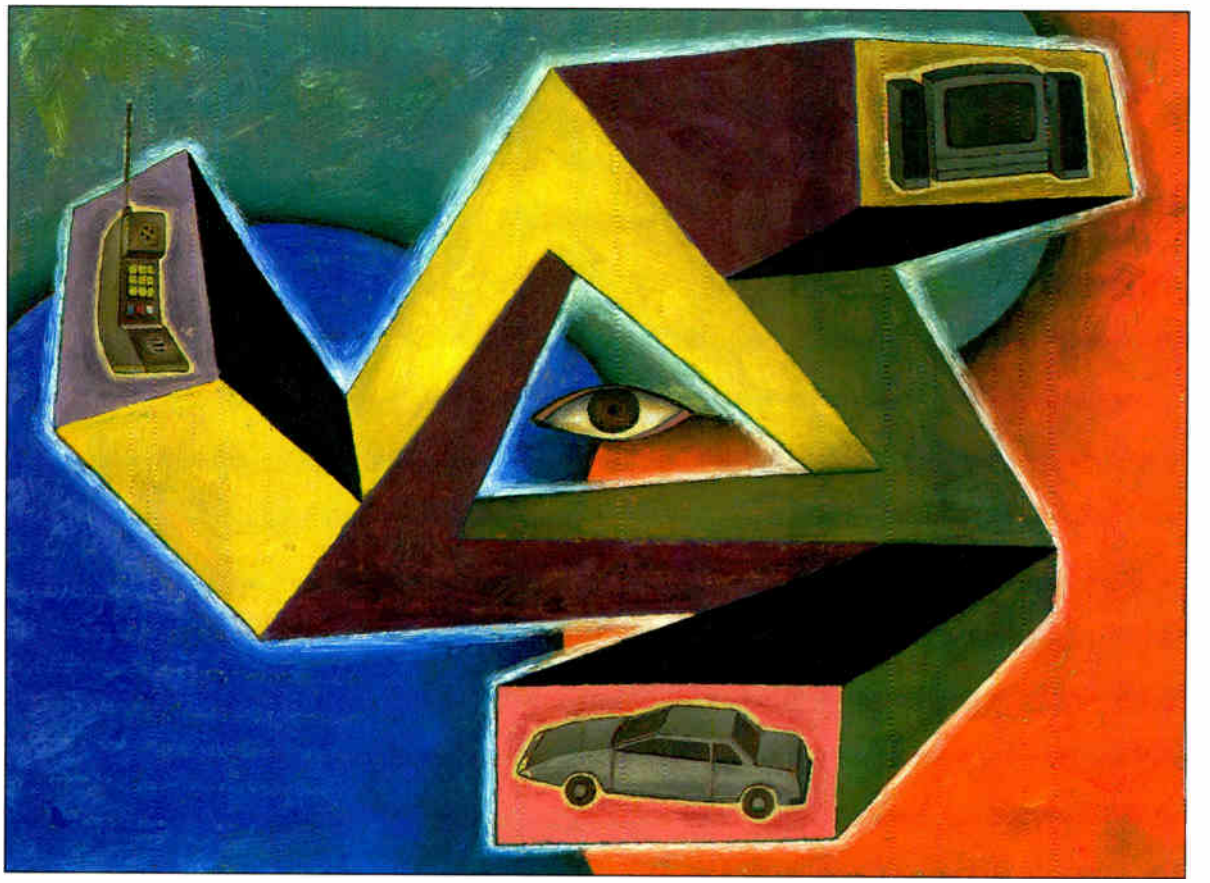


ILLUSTRATION: FERRUCCIO SARDELLA

Up until about five years ago, I knew everything. I had a complete understanding of every boat, TV, compressor/limiter, tape deck, computer, hard drive, camera, microwave, cellular phone, office building, oil heater, air conditioner, V-twin, V-8, V-10, V-12 and automatic weapon that I owned. And I knew exactly how all the other stuff I came in contact with worked.

Those were the days of physical technology—the days when you could actually see and *touch* the components of your technology. Not just the interface and the packaging, but the actual technology within. If you really wanted to know how something worked, you could take it apart and look. Even chips had parts numbers that you could eventually find in some obscure Japanese book.

It was a physical world where information and education were there for the taking. I loved it. I took apart *every* piece of electronic gear I bought before I first fired it up. Same with every car or bike, every boat, every...thing. I took apart the test gear that I bought to help me analyze all the other gear. If it had knobs, I turned them. If it had screws, I turned them, too. I got a better education from the insides of boxes and vehicles than I ever got in school—and I went to a *lot* of school.

I learned how the world designed, how it built, how it thought. I saw how 24-track deck X could be improved by using the shielding from cellular phone Y.

My companies and my equipment designs have been successful because I have one simple but great trick: I apply technologies from one field to another, totally unassociated field. I combine technical concepts that others don't see working together until I end up with better gear that does new things for less money.

This has generated patents that apply to musical instruments, avionics, automotive performance and safety, exotic weaponry, space exploration and other *much* weirder fields.

But that was then, and this is now.

My newest car has *seven* "body computers." This does not include the engine-control computers. It knows when I am near and opens the doors automatically when it sees me. It locks them when I get more than about ten feet away. It

BY STEPHEN ST.CROIX

—CONTINUED ON PAGE 220

“A revelation...

a reliable, bulletproof PC Workstation, outstanding value for money.”

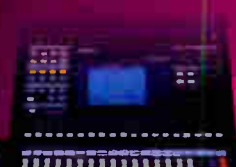
MEL LAMBERT MIX MAGAZINE. FEBRUARY 98.

SSHDR1 plus

- Windows® 95 or NT®
- 12 to 196 track playback
- “Rock Solid” sync. to tape and MIDI sequencers
- Full digital connection to Yamaha D2R/D3D, Korg, Mackie and Tascam Digital Consoles
- Free 24bit recording software upgrade (in the works for ’98)
- Balanced +4dBU XLR’s 20 in/24 out (optional)
- Real time custom mixing and EQ s
- Simple to use powerful editing tools
- Punch in/out on the fly (tape machine style)
- Optional effects plug-ins including Reverb from TCWorks and Wave Mechanics Inc.
- Optional removable hard drives (IDE/EIDE up to 26 hours per disk)
- EDL file support (optional)
- ADAT/DA88 editing
- Fully networkable

CIRCLE #010 ON PRODUCT INFO CARD

24 TRACK SYSTEM
(20 IN/24 OUT, ADAT, TDIF)
FROM $12,800(SRP)



16 In/Out TDIF

Digital Console

16 In/Out adat

4 In/8 Out S/PDIF

20 Analog Ins

4 In/8 Out AES/EBU

Network

adat

24 Analog Outs

DAT

TDIF

Designed for Microsoft Windows NT Windows’96

disc

Soundscape™

internet:http://www.soundscape-digital.com

INTERNATIONAL SALES ENQUIRIES:
TEL: +44 1222 450120 FAX: +44 1222 450130
email:sales@soundscape digital.com

U.S. SALES ENQUIRIES:
TEL: (805) 658 7375 FAX:(805) 658 6395
email:us-sales@soundscape digital.com

CANADA SALES ENQUIRIES:
TEL: (613) 342 6999 FAX: (613) 342 8499

The compressor that forgives,

50 factory presets, 50 user programmable presets

OverEasy® with Variknee™ on hard knee thresholds

Dual mono or true stereo linked operation

Wide ranging gain control allows for +4/-10 operation

8-Step analog input and output metering

Digital input and output meters measure internal digital processing levels

Hybrid display technology. Combines the best of graphics, character and icon based displays

Ultra wide dynamic range 24 Bit A/D and D/A converters with TSE™ Tape Saturation Emulation on board

Digital meters show both peak and average levels

High resolution gain reduction metering

TYPE IV™ output available when equipped with digital output option

Optional AES/EBU or S/PDIF output for assured compatibility and flexibility. 48 / 44.1 kHz output

Build your own presets using your favorite building blocks

Change programs, parameters, and bypass via midi controllers

Gate

Start with the gate. Set parameters for threshold, ratio, attack, hold, release, and output gain. See the effect of your settings on the graphical display, as well as on the gain reduction and audio level meters, they all interact in real time with your manipulation of the parameters. Start with a threshold setting of about -60dB to clean off the noise in between the vocal takes. You can save your final gate settings as a "gate preset" building block and recall it into any other setup you do.

Compressor

Then move to the compressor. The effects of the gate settings are still visible on the graphic display, so let that help you determine where to set your compressor threshold. The parameters you change here will also effect the curve on the graphical display in real time. Move through all the regular parameters, like threshold, ratio, attack, release, and output gain. For vocals use a threshold of about -25dB, a ratio of about 3:1 or 4:1, and a slow attack and fast release for the most natural sounding effect. Your compressor settings can also be saved off as a building block to be called up into any other preset.

Limiter

On to the limiter. Changes you make to the limiter settings are also seen on the graphical display. Adjust the level up or down to suit your needs. The flat top line of the display moves up and down as you adjust the level. You can also set the speed at which the the limiter lets go of the signal as it goes below the threshold. This is truly smooth limiting, with patented dbx PeakPlus™ algorithms, so rest assured that where ever you set your threshold level, your tape will not distort, and your signal will not get butchered as it goes across the threshold. And like the other parts of the processor, your limiter settings can be named and saved for later recall.

Save The Planet  It's The Only Market We've Got.

but never forgets...

All the classic dbx trademark sounds in gating, compression, limiting, de-essing, and sidechain EQ.

Compression controls: threshold, ratio, gain, OverEasy©, auto, attack, hold, and release

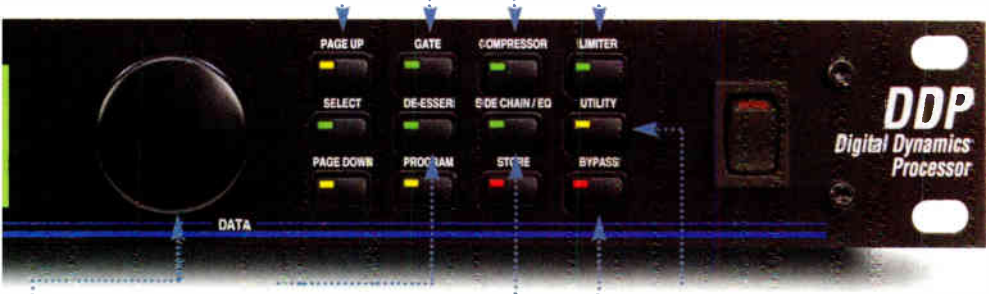
Variable Transient Capture Mode™

Hi-res graph shows composite output vs. input plot of audio signal

Gate controls: threshold, ratio, attack, hold, release

Ultra-smooth continuous Auto mode.

Limiting from -50dB to 0dB, with gain, attack and release.



Precision control over every parameter

De-ess from 800Hz to 8kHz, vary the amount.

Utils: sample rate, A/D input and output, Midi functions, Sysex functions.

XLR and 1/4" balanced ins and outs.

Sidechain functions for advanced filtering applications. Sidechain monitor included

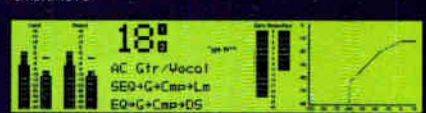
EQ offers 20Hz to 20kHz, Q, ±12dB, and SCMonitor.

Midi bypassable via midi program changes.

De-esser

De-essing works the same way; see the effects of your settings displayed on the graph. Parameters here are the common ones: threshold in frequency, 800Hz to 8kHz, and amount in percent. Other available processing includes EQ - both in-path and sidechain, for special-effect types of processing. When you are editing any of the building Blocks, its icon is visible on the display, and the parameters are shown on the graph, so it's always easy to know where you are. Parameters are easy to see in this page driven operating system. When it's as complex as this, it's nice to know somebody was thinking when it was put together.

and More



You can also work in stereo, or set up a completely different and independent processing chain for the other channel. Also, notice that the audio meters are capable of showing both peak and average levels for input and output. Optional digital output with the TYPE IV™ Conversion System with TSE™ (Tape Saturation Emulation) provides up to 24-bit output in either AES/EBU or S/PDIF formats with the trademark digital processing of TYPE IV™. The DDP also has full MIDI Automation capability, with separate midi in and thru jacks. Entire processing setups may also be saved into one of 50 user defined presets, or use one of the 50 factory setups.

dbx digital

It Forgives

• New dbx technology, the TYPE IV™ Conversion System with TSE (tm) (Tape Saturation Emulation) gives you the pleasant overload characteristics of analog tape without the harsh distortion of most digital input systems. No more dancing around with the input levels to protect the integrity of your audio.

• Ultra-wide dynamic range 24 bit A to D converters with TYPE IV™ make your signal sound better than you ever thought possible. Capturing the full dynamic range of your analog signal and coupling it with the powerful dynamic range of this patent-pending dbx process, TYPE IV™ will make your digital signal sound like it came from the quietest high-quality analog source you could imagine.

• With the extensive metering of the DDP, you can see EXACTLY what is going on with ALL parts of your signal: input, internal processing, and output, with peak and VU, as well as gain reduction for both sides of the stereo image.

• And speaking of stereo, you can work in stereo with dbx's True RMS Power Summing™ for phase-coherent tracking, or in dual mono mode, without the two channels interacting at all, making the DDP a great processing value.

It Never Forgets

• The DDP works right out of the box. It comes with 50 factory setups that are guaranteed to knock your socks off. There are presets for every application you can think of, and then some. dbx engineers are musicians and recording engineers. We know what a compressor is supposed to sound like, and we know it better than anyone else. We invented compression. We eat, sleep and breath compression.

• Want to duplicate that perfect compressor set-up? Each processor in the chain has all the parameters you would expect. After you set the parameters the way you want them , save it as a processor preset, available to be recalled any time. These building blocks allow you to save entire setups just for the way you like to work. It doesn't matter that you are doing a live gig one night, then mixing the tracks in the studio the next night, the DDP will be there, just the way you left it.

• When you save a preset, you also save the information that makes it work behind the scenes, too. Digital output (optional), sample rate performance, MIDI setup, as well as any of the other utilities, like sidechain setup and monitor, EQ settings, and SysEx functions.

• When you make changes to any parameter, you can see where your adjustments are effecting the signal, simply by looking at the Hi-Res graphical display, which shows the processing curve in real time as you make your adjustments.

Check out the DDP at your local pro audio outfitter, and experience DIGITAL performance you'll never forget.

dbx PROFESSIONAL PRODUCTS

dbx Professional Products • 8760 South Sandy Parkway
Sandy UT 84070 • Phone (801) 568-7660 • Fax (801) 568-7662
email: customer@dbxpro.com • URL: http://www.dbxpro.com
A Harman International Company

CIRCLE #011 ON PRODUCT INFO CARD

COURSE CATALOG FOR THE REAL WORLD

IN THIS SCHOOL, YOU'LL LEARN WHAT TRULY MATTERS

BY PAUL D. LEHRMAN

There's never enough time to learn everything you need to know. That's true of life, and it's especially true of audio education. Whether it's a weekend course or a four-year undergraduate degree program, there's always more material that needs to be mastered than students have time to learn. And what with physics, math, acoustics, electronics, music theory and all the other things that the student has to deal with, practical subjects often get short shrift. Many problems the student will have to deal with on a daily basis when he or she hits the workplace are barely touched on, if at all.

I'm going to take the opportunity this month, therefore, to propose a revolutionary new syllabus for training audio professionals. In this curriculum, around which I am designing a whole new school—named for myself, of course—students will be able to ignore all that theoretical stuff and concentrate on what they *really* need to know to survive in the audio business.

So here is the first List of Offerings ("LoOf") for the Lehrman Institute for the Real-world Practice of Audio (LIRPA):

Psychology 101a. *Understanding the Client, and Why He or She Hates Me.* How to deal with people who would much rather be doing what you do than what they do, and who resent you for it. How to deal with people who are sure they could do your job better than you and resent you for it. How to deal with people who haven't got the faintest clue what it is you do and resent paying you for it. Advanced seminar in turning the other cheek.

Psychology Net30. *Trying Not to Hate the Client.* Continuation of above. Understanding and overcoming your own feelings of hostility against people who use your console as a picnic table, your lobby as a day-care center, your mouse pad as an ashtray, your mixing sessions to make loud phone calls about their next gig, and your accounts receivable as a personal line of credit. Independent study in not taking it out on your domestic partner.

Live Sound I-90. *Surviv-*

ILLUSTRATION: WILL TERRY

LIKE OTHER TOP PERFORMERS, THE LONGEST LASTING BATTERY USES A STAGE NAME.

Around the house, DURACELL® batteries go by the name The Copper Top®. But on the job, the longest lasting batteries answer to PROCELL® PROFESSIONAL™ BATTERIES. PROCELL batteries are DURACELL® batteries. The longest lasting professional alkaline batteries you can buy. You get the same DURACELL performance. The same DURACELL dependability. The same DURACELL value, and more, because PROCELL Professional Batteries are specially priced and packaged for professional use. Now that's one act that's hard to follow. For more information or a distributor near you, call 1-800-4PROCELL. Ext. 35.

When it matters the most.

DURACELL®

PROCELL® PROFESSIONAL BATTERIES

CIRCLE #017 ON PRODUCT INFO CARD

ing the Tour. An intensive, eight-week traveling course starting with lower-digestive-tract conditioning, placing emphasis on tolerating day-old fried foods and week-old pies. Muscle-building techniques with concentration on avoiding hernia and back-sprain. The role of insulated footwear in avoiding electrocution when turning on the AC at outdoor venues. Defensive driving techniques for overloaded 18-wheelers and decommissioned Trailways buses, with wild parties going on in the back. Secrets of mixing a 14-piece band on three hours of sleep. Laboratory fee covers trusses, knee pads, Pepto-Bismol, No-Doz and Lysol. Prerequisite: Recreational Pharmacology 101.

Live Sound 007. *Self-Defense for FOH Engineers.* Units on pre-show crowd interactions, including the proper responses to stupid questions like, "Is that computer actually playing all the music?" "Can I plug this tape recorder into your board?" and, "Hey, got any blow in the truck?"; repelling mid-show heckling, kicking people off the riser and deflecting assorted missiles, organic and inorganic; minimizing post-show violence after the headliner shows up drunk and falls off the stage during the second tune. Advanced students learn how to use feedback judiciously to quell potential riots. Firearm permit required only if student plans to cross state lines.

Live Sound 00100. *Sign Language for Monitor Engineers.* How to interpret musicians' gestures, obscene and otherwise, and tell the difference between "more guitar," "more vocal," "more drums," "more everything," "bring me a drink," "get this cigarette out of my mouth" and "which song are we supposed to be playing?" Preparing appropriate responses, particularly when you have no idea what's going on, with special attention to nodding, looking concerned, staring intelligently at the computer screen and moving patch cords around.

In this curriculum students will be able to concentrate on what they really need to know in the audio business.

Audio Production 35m. *Mixing for Cinema.* How to make mixes that sound wide, full, loud and absolutely gorgeous on the soundstage for the studio executives, but also won't distort, crap out, create bizarre perspectives, and otherwise sound utterly atrocious over the 14 non-compatible systems found in the various local vest-pocket multiplexes where most of the paying customers will hear them. A multi-semester course with no final exam, because it never really ends. Laboratory fee for popcorn (extra butter discouraged), but all students get coupon for a free second drink. Advanced research seminars on "The Academy Curve: Annoyance or Bother?" and "What Does 'Formatted to Fit Your Screen' Mean, Anyway?"

Audio Production 2997df. *Mixing for Television.* Techniques for melding 128 discrete multichannel audio elements into something that sounds coherent coming out of a single 2-inch speaker after being pumped through six ran-

domly adjusted limiters. Lab fee of $3.95 per week to replace blown 2-inch speakers. (Radio Shack gift certificates accepted.)

Audio Production 288k. *Mixing for the World Wide Web.* Compression, masking and bit-reduction techniques, concntrating on usng advncd algrthms to elmnat unncsry nd rdndt dta undtct..ndtct..dtct..tct..t..*[error: broken pipe]*..undetectably. Techniques for making MIDI-based Web music not sound the same all the time. MIDI Web music, and how not to make it always sound the same. How to get Web music based on MIDI to not sound the same always. Sound MIDI music, and how Web time not to always it make constantly. Tricks for keeping listeners from falling asleep while they wait for "real-time" audio playback to start.

Audio Production 640cd. *Mixing for Computer Games.* Keeping. Files. And. Word. Lengths. Really. Short. Using. The. Same. Files. Over. And. Over. And. Over. And. Over. Again. Don't. Forget. To. Cmprs. &. Downsample.

Audio Production 5.1~b. *Hyping the Future.* Persuading clients to spend mucho extra bucks on alternative surround-sound mixes when no one has a clue as to how they're ever going to be delivered. Why surround systems designed for movie sound effects are great for music, especially if you really want to be sitting in the second-clarinet chair in the Vienna Philharmonic. Convincing clients that they can hear images between the speakers when in fact there aren't any. Extensive technical analysis

Learn defensive driving techniques for decommissioned Trailways buses, with wild parties going on in the back.

of how your mixes will sound wonderful at their homes, despite the fact that they are using five completely mismatched speakers, one of which is behind the couch and another facing the wall on top of the bookcase. Advanced students get to try to locate the sweet spot; microscopes are provided. Extra-credit seminar in how 96kHz sampling will help.

Economics 2001q. *Planning your Purchases.* How to determine whether the manufacturer of the proprietary platform you're about to invest $100,000 into is going to be around three years from now, or whenever the gear is fully amortized, whichever comes first. Why whatever answer you come up with is probably wrong.

Economics 1984rip. *Waiting for Apple to Die.* An extremely long, painful course, taught mostly by business analysts and commentators who wouldn't know a decent operating system if it snuck up and bit them on the GUI. Analysis of how an endless string of CEOs can make incredibly stupid decisions and still maintain a huge base of diehard devotees. Course was scheduled to be discontinued (or moved to the Medieval History Department) several years ago, but still manages to hang on as students sign up out of either loyalty or morbid fascination.

Economics 4696tiger. *American Entrepreneurship.* Starting a high-tech company, attracting venture capital, designing products, hiring personnel,

MIX Presents

StudioPro98

The Technology & Business of Audio Production

Thursday & Friday, June 25-26, 1998
New York Marriott Marquis, New York City

This is the conference you've been waiting for! Join the editors of *Mix* and more than 50 leading experts in recording and sound production in exploring the technologies and issues that are shaping the business today.

8 INFORMATION-PACKED SEMINARS

Making the All-Digital Transition - **Moderator: Ken Hahn** (Co-owner, Sync Sound, New York)

That Dangerous Upgrade Path - **Moderator: Paul Lehrman** (Author, teacher, and *Mix* columnist)

The Creative Interface: Project Studios and Commercial Facilities - **Moderator: Dan Daley** (Author and *Mix* East Coast Editor)

File Format Interchange: A Progress Report - **Moderator: Mel Lambert** (consultant and *Mix* contributing editor)

Studio Remodeling and Design: Practical Solutions to Common Problems - **Moderator: Bob Hodas** (Acoustical expert and *Mix* contributing editor)

Sound for Picture: Specialization or Diversification? - **Moderator: Dean Winkler** (President, Post Perfect, New York)

Modular Digital Multitracks: The Revolution Continues - **Moderator: George Petersen** (Editor, *Mix*; author of *Modular Digital Multitracks: A Power User's Guide*)

New Technologies—New Specialties - **Moderator: Phil DeLancie** (*Mix* media and mastering editor)

4 SPECIAL FORUMS (Both panels held each day)

The Art and Business of Producing - **Moderator: David Schwartz**. A panel of GRAMMY and TEC Award-winning producer/engineers (including Ed Cherney, Don Was, George Massenburg and others) will discuss how they work with artists in the studio, as well as the real world business issues of being a producer. Hosted by the Music Producers Guild of the Americas (MPGA).

Digital Consoles—Here and Now - **Moderators: George Petersen and Mel Lambert**. Digital mixing consoles—both large and small, for just about every application—are no longer a dream. Join with manufacturers and noted users of these miracle machines and get the answers you need to guide you on the digital path.

SPECIAL EVENING EVENT!

Reception/musical performance on Thursday, June 25. (Sponsored by the Recording Academy®). Relax and network with fellow audio professionals. Free to all registered attendees.

StudioPro98 Participants

(as of March 1)

Dave Amlen • Barry Beckett • David Beal • Russ Berger • Paul Berry • Danny Caccavo • Peter Chaikin • Ed Cherney • Jimmy Church • Peter D'Antonio • Patrick Dillette • Randy Ezratty • Frank Filipetti • Peter Fish • Alan Foust • Ron Franklin • Ethel Gabriel • Brooks Harris • Jay Healy • Fred Jones • Ralph Kelsey • John King • Jeremy Koch • Jeff Kracke • Joel Krantz • Josh Leo • Tommy LiPuma • Gary Lynn • Bob Ludwig • Arif Mardin • George Massenburg • Roger Maycock • Kooster McAllister • Ed McDermott • Bill Philbrick • Bob Pomann • Jonathon Porath • Steve Rainford • Rod Revilock • David Schwartz • Howard Schwartz • David Smith • Tom Stephenson • John Storyk • Michael Tapes • Bob Tudor • Tony Visconti • Don Was • Mark Yonge • Plus others TBA

In Cooperation With

Don't miss the most valuable two days outside the studio you'll spend this summer! For a brochure and registration materials, return the coupon below or call Daniela Barone at (510) 653-3307 or fax (510) 653-5142. Email: Daniela_barone@intertec.com

YES—I'm interested in attending StudioPro98, June 25-26 in New York City. Please send me a brochure and registration materials.

NAME

ADDRESS

CITY STATE/COUNTRY ZIP/POSTAL CODE

PRIMARY OCCUPATION

PHONE FAX E-MAIL

MX498

Mail to: Mix/StudioPro98 • 6400 Hollis St. #12, Emeryville, CA 94608

CIRCLE #014 ON PRODUCT INFO CARD

acquiring real estate, building manufacturing facilities, setting up marketing plans and advertising strategy, constructing a dealer network and kissing the whole thing good-bye by selling out to any overseas company that shows interest at the first signs of slowdown. Advanced unit in tracking the yen for maximum leverage.

Legal Studies 1215b. *Copyright Law for Producers and Composers.* Answers important practical legal issues like: "How many notes do I have to change in a tune before I can claim it's original?" "How many seconds of a sample can I use without paying any royalties?" "How many times can I sell the same music to the cable networks before anyone notices?" "If it's on the Internet, it's public domain, right?" and "How do record companies get away with writing contracts that would make 18th-century slave traders blush?" Guest lecturers: former record company executives (who will address the class from behind an opaque, bulletproof screen), members of Negativland (assuming we can find any who aren't under a court order prohibiting them from speaking in public), and any L.A. rappers who aren't dead yet.

Communications T1. *Making Yourself Obnoxious on the Internet.* How to overwhelm audio oriented Usenet groups and listservers with highly authoritative, definitive and totally unsubstantiated claims about any subject anyone else brings up, making yourself look like the consummate authority on stuff you, in fact, know nothing about. How to spew venom at detractors and doubters so effectively that they never bother to post anything ever again. What to do when you find you're the only one left.

Materials Science 1555s. *Duct Tape Is Your Friend.* An ongoing seminar on the ever-expanding universe of this lowly but ubiquitous tool and its uses in equipment repair, musical instrument modification, telecommunications, studio design, plumbing, interior decorating, automotive engineering, marital counseling, child rearing and client management. Unit on origin of its many names—"duck tape," "gaffer tape," and "gaffa tape" (UK only)—and when to use which so that people don't look at you funny. Second-semester students also get to work with bubble gum, old guitar strings, rubber cement and blowtorches.

Meditation 777z. *Life on Hold.* How to use that time spent waiting for tech

support to your advantage by deep breathing, stretching, yoga, tai chi, clipping your nails, brushing your teeth and even going for a walk. Advanced laboratory seminar in simultaneously running a session and keeping the client happy and ignorant. Units cover silent Holds, periodically reassuring Holds and obnoxious pitch-filled Holds.

English(?) 133x. *Jargon for Engineers.* Expanding your vocabulary to include the latest buzz words that impress clients, ensure successful job interviews and keep the people you meet at trade shows from deciding you're a complete moron. Learn how to drop terms like "jitter," "dither," "bit mapping," "sigma-delta-modulation," "thermal recalibration," "firewire," "throughput" and "streaming media" into your conversation, whether you know what they mean or not, as well as the true meaning (assuming there are any) of acronyms like SCSI, RAID, NTSC, CCIR, IDE, OMF, SMDI, VITC, NASDAQ and, of course, WYSIWYG.

English(?) 386pdq. *Technical Writing for Audio.* Unit on how to distill three years of product research and development into an incomprehensible 42-page manual (with badly drawn pictures), followed by unit on how to write a 700-page, three-volume "user's guide" using nothing but the original engineering spec with no tutorials, practical information or index. Advanced unit on writing reviews of obviously inferior products for trade journals and finding absolutely nothing wrong with them so as not to piss off the advertisers. Special unit (for visiting foreign students only) in how to convince employers that you should be in charge of user manuals for the North American market, and then forgetting everything you've ever learned about the English language.

Information Management 8.0.1a. *In Search of the Lost File.* Learning how to keep cool while you look desperately for the last session file, which was undoubtedly inadvertently deleted when you thought you were cleaning all the dirty pictures you downloaded from the Internet off your hard disk. Students also focus on how to import "compatible" files from one platform to another in less time than it would take to re-record the whole damn thing.

Philosophy 666. *The Metaphysics of Audio.* Principles of crystal orientation in unidirectional audio frequency cables; choosing the right colored marker for stabilizing playback of Compact Discs; quantifying timing delays caused by inexpensive MIDI cables; and the role of gravitational orientation in vacuum-tube transconductance. Advanced unit on "Pin 2 or Pin 3 Hot?" Shovels provided.

Physics EMC2. *Comparative Studies in Chronological Science.* Time-determination methodologies of various segments of society and industry. How to tell the difference between a "Web year," a "Model year," a "Tax year," a "Fiscal year" and "Shipping in a year." How certain calendars manage to place the "first quarter" in August. The effect of Zeno's Paradox on product development: How time dilates as a product's release date approaches, eventually stretching out into infinity, so that the thing never really has to ship. Why Einstein didn't know the half of it.

Business Administration 999q. *Graduate Thesis in Resume Writing.* See listing under "Fiction." ■

Paul Lehrman will be happy to reserve you a place in his institution if you send a deposit check made out to "Cash," in any amount, to his numbered bank account in the Cayman Islands. Thanks to fellow faculty Richard and Coleman. And good luck to all graduates, everywhere.

Greg Goldman

Photo: Lucie Studio, Brooklyn Recording

ON BASF *tape*

Producer/Engineer Greg Goldman's credits include **Melissa Etheridge, The BoDeans, The Rolling Stones, Eric Clapton, Bruce Springsteen,** and **From Good Homes.**

"BASF 911 captures the depth and nuances of the music I'm recording... The consistency and tape pack are superb. That's why I count on BASF tape whenever I record a new album."

911's wide dynamic range, low noise and low print-through make it an ideal choice for multitrack sessions. Outstanding phase and level stability, along with specially formulated binder make 911 the tape of choice for recording and long term archiving of important masters.

EMTEC Magnetics

BASF

Distributed in North America by EMTEC Pro Media, Inc. US 1-888-295-5551 Canada 1-800-205-0070 or visit our web site at www.emtec-usa.com

Audio Transmission

Illustration: Kurt Vargo

Systems

GOING THE DISTANCE, FROM A TO B

It's time to lay down vocal overdubs for your big album project, but your singer is stuck in Lodi (again). Or you are ready to mix effects for that big sci-fi flick, but your sound designer is lost in space. For producers and engineers, scenarios such as these may have inspired horror in the past, when the ability to incorporate audio into a production in real time was limited by the walls of the studio or soundstage. In recent years, however, advances in telecommunications technology have yielded new ways to transcend these limitations, with high-profile projects such as Frank Sinatra's *Duets* album demonstrating that artists need not be in the same physical space to make beautiful music together.

In a few short years, limited-bandwidth analog lines have been replaced with digital links that use sophisticated data compression techniques to squeeze "CD-quality" audio (that's the claim, anyway) over upgraded phone lines. At the same time, the rapid spread of the Internet has raised the possibility that the real-time transmission of high-quality sound between any two modem-equipped computers may become a viable altemative to dedicated lines over the regular phone system. With so much change occurring so rapidly, it can be a bit hard to keep up with the options for sending audio from place to place. To help sort out the situation, we asked representatives of a number of companies specializing in the field to tell us what they offer, who they serve and where they think the future of long-distance audio transmission is headed.

BY PHILIP DE LANCIE

What products and/or services does your company offer for the transmission of high-quality audio?

APT (Belfast, Northern Ireland). *Emma Wickens:* Audio Processing Technology is the designer of the apt-X digital audio data compression system, the only high-quality, full-bandwidth, non-psychoacoustic algorithm available in this market. The apt-X system offers extremely short signal processing delay, immunity to both multiple and tandem coding effects and inherent robustness to transmission path errors. We offer apt-X-based products to the film, post, music and broadcast industry, ranging from IC-level OEM solutions to system-level product for the studio end-user.

In the post-production market, well in excess of 600 studios worldwide are now using our WorldNet system on a daily basis. WorldNet is a full duplex digital audio codec with integral ISDN line management system for full studio-quality audio. The system supports both digital and analog I/O, timecode and auxiliary data as standard, and it enables multiple-destination connectivity. The unit is widely used in post, film and music studio environments, as well as broadcast applications where audio

Hello, New York, It's Los Angeles

SMOOTHING OUT LONG-DISTANCE AUDIO

by Gary Eskow

Remember when ADR sessions that used telephone lines to connect studios thousands of miles apart were the new thing? ISDN patching is a service that most high-end studios specializing in audio post now offer, but be careful. Although the technology is democratic—i.e., relatively inexpensive and available to all—the execution of a smooth ADR or music session that involves a producer in city A and high-priced talent in city B requires experience on both ends.

Mix recently spoke with raconteur Howard Schwartz, the owner of Manhattan's Howard Schwartz Recording Inc. We also spoke with Buena Vista Sound engineer Doc Kane, who records voices for Disney's animated features (including *Aladdin*, *The Hunchback of Notre Dame* and *Beauty and the Beast*), about how the Burbank facility came to work with Schwartz on a regular basis.

When ISDN capability became commonplace several years ago, Schwartz and Co. found themselves being asked to install studios in the residences of regular voice-over artists such as Peter Thomas. Talent found the idea of rolling out of bed and recording in their own homes quite appealing.

"We built a studio for Peter inside his pool house in Naples, Fla., Schwartz says. "A very simple setup, with a Mackie board, Neumann U87 and a ¼-inch tape machine and cassette deck. Hal Douglas is another one we built a room for. For the simple jobs, these home studios can be effective, but you really need to have knowledgeable personnel around for the more important work. People don't realize there's a lot that can go wrong, especially when you're dealing with timecode that is being piped thousands of miles in real time."

ISDN has become something of a generic term for the technology that allows digital audio to be sent across telephone lines from one location to another. There are a number of different encoding and decoding units, including those from APT, MUSICAM, Telos and perhaps the most popular, Dolby Fax. Since none of these boxes has cornered the market, and it may just happen that talent is in New York working on the next project while a producer is scouting a location in Oshkosh, and the local studio has only one codec, well, damn it, Howard Schwartz has all of them, just in case.

"Each technology is different," Schwartz explains. "With some, you can only send a stereo signal in each direction, with no discrete left and right channels and no timecode. 3D2 gives you two channels of discrete audio in each direction. You can split both directions simultaneously, depending upon how sophisticated the box people buy is, and 3D2 also sends and receives timecode—either end can drive a session. Dolby Fax carries up to six channels and timecode. Motion picture companies like this system because it can carry surround sound and discrete stem mixes."

Schwartz also offers both EDnet and Keystone links, the two primary network providers that take the digital material and send it downstream. "We're doing a variety of ISDN work on a daily basis, including recording major Hollywood talent, pulling music from London and sending final spots all over the country," Schwartz says. "We can communicate and record with somewhere between 5,000 and 8,000 different places in the United States alone.

"As far as overseas work goes, here's a typical example of the kind of work that we do all the time: An advertising agency that handles a global airlines account, or perhaps a major credit card that has a global image—directors and producers for these accounts may travel to Thailand to shoot a spot, which will be posted here in the States. There are often copy changes made, and it may be that a director will be in that Thai location with an actor, and the new copy will be laid down to our equipment in time to post the spot on schedule."

You think sync is simple, no? Fact is, working long distance can be tricky when it comes to sync issues. Schwartz says a six-frame offset to allow for the time lag is his rule of thumb. "Phil Ramone and I worked it out when we worked on the Frank Sinatra *Duets* album. We had to advance the music so that it all came back in sync. Sometimes facilities cheap out and have only a one-direction box, but the delay in both directions is amazing—and extremely disconcerting to talent. It's tough enough on the talent, and the producers and directors as well, that everyone is not in the same room at the same time. Sync problems exponentially compound the hassles. We've figured

—CONTINUED ON PAGE 42

UNCOMPROMISING QUALITY!

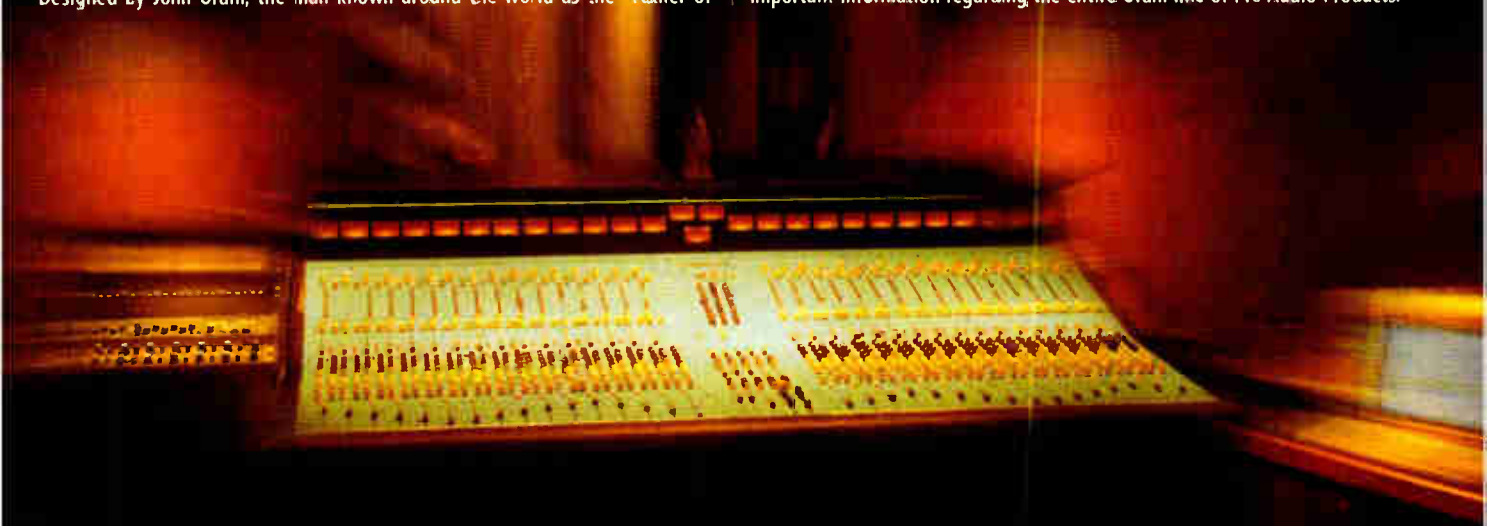
If you're an audio professional — a person who actually makes a living creating great recordings — you understand that sound quality and reliability are the two most important features of any equipment. If the finished product doesn't blow the listener's socks off, people won't be lining up to record at your studio. And it doesn't matter how sophisticated a product is if it's down for repairs for a month at a time — who's going to be making great recordings then?

If you're in the market for a new console and are thinking about one of the newest digital models...STOP! If you want sonics that can compete with a $200,000 "name brand" console at a fraction of the price, along with the warmth and richness of classic British EQ, well, you're just not going to get it with a digital mixer.

ORAM PROFESSIONAL AUDIO PRODUCTS are built to exacting specifications to sound incredible and perform flawlessly day-after-day, year-after-year. Designed by John Oram, the man known around the world as the "Father of British EQ" (we're talking Trident consoles, Vox amps, Martin guitar preamps), these consoles and modules have all the real world features you could ever want along with the vintage sound everyone is looking for: Ultra low-noise design, superior reliability and cutting-edge robotics for glitch-free automation.

But the proof comes when you hear the absolutely stunning audio quality, experience the magic of Oram Sonic's renowned British EQ and feel the rugged construction. Oram products are an investment that will deliver a lifetime of exceptional performance. Other consoles *promise* great sound, but Oram *delivers!* Prices for their 8-bus consoles begin at just $10,995, with 24-bus models starting at $32,900. Not cheap, but the best rarely is.

If your craft demands the very best, if you're not willing to gamble your reputation by using an inferior board, may we suggest that you call us today for important information regarding the entire Oram line of Pro Audio Products.



- **BEQ SERIES 8** 16/24/32 Channel Console
- **BEQ SERIES 24** 32/48 Channel Console
- **HD-EQ2** Equalizer
- **MWS** Microphone Work Station
- **OCTASONIC** 8-Channel Mic Preamp
- **VU-MORE** Meter

"This is the quietest, most inspiring console I've ever used. I've changed my Trident for (the BEQ 32) and the Oram Sonics are all there. The EQ magic of John Oram is musically most satisfying, it's simply the best."
— Uli Jon Roth, "Scorpions"

"This is not a take-it-or-leave-it console where what you see is what you get whether it suits you or not . . . what you do get as standard offers unusual flexibility that should meet most people's needs even if they haven't thought of them yet." *— Studio Sound (August 1996)*

"There is something special about Oram EQ. Its control ranges and response curves have been so well chosen that corrective and creative adjustments appear effortlessly out of it. It also seems to add gloss and smoothness to everything . . ." *— Dave Foister, Studio Sound review*

ORAM
PROFESSIONAL AUDIO

Distributed exclusively in North America by SWEETWATER SOUND

(219) 432-8176

sales@sweetwater.com / www.sweetwater.com

quality cannot be compromised, such as remote recording.

We also supply the multichannel MCE800/MCD800 digital audio encoder/decoder. These units handle up to eight full-bandwidth, full-duplex links between studios. This product is used for applications including surround sound film and video, and multilingual broadcasting. Other related products include the DRT 128 Digital Reporter Terminal, the NXL256 Broadcast Network Transceiver and the BCF 256 Broadcast Communications Frame.

Dolby Laboratories (San Francisco) *Nancy Byers-Teague:* For interconnecting film studios, recording studios and post-production facilities with CD-quality audio, we developed Dolby Fax, which uses economical ISDN telephone lines. The basic system combines Dolby AC-2 codecs with appropriate ISDN terminal adapters for 2-channel audio transmission. Multichannel transmissions, quite common in the film industry, are possible using additional Dolby codecs.

Dolby manufactures a 2-channel multi-algorithm encoder, the DP503, and a matching decoder, the DP524. As with Dolby AC-2, the standard audio coding algorithm for the Dolby Fax system, these units provide 2-channel Dolby Digital (AC-3) and MPEG-1 LII coding for maximum flexibility and interconnectivity. For Dolby Fax applications, these units are now distributed in the U.S. and Canada by EDnet.

EDnet (San Francisco). *Tom Scott:* Entertainment Digital Network sells a wide range of audio codecs and telecom terminal and control equipment. Having worked closely with Dolby Labs since our inception, we are now the exclusive supplier of Dolby AC-2, AC-3 and MPEG products (Dolby Fax) to serve the music recording, film and TV markets. We also provide MPEG audio codecs from Musicam—the CDQ, PRIMA and Roadrunner series—and the Telos Zephyr, mainly for broadcasting and commercial voice-over markets. The apt-X product line—DSM-100/Prolink and DRT Reporter series—finds widespread application in the commercial post-production and voice-over areas. We supply a variety of specialized codecs as well, such as our ZeroC uncompressed audio delivery system, 6-channel Dolby systems and 8-channel APT systems.

EDnet also provides custom add-on products for machine control such as the Colin Broad IS-1 ISDN synchronizer and the APT RM-240 for long-distance synchronization and control of video and audio decks. Other products we provide that facilitate these long-distance audio connections include our own ED-100 line of biphase and MIDI ISDN interfaces, and RS-422 control devices. We also offer PictureTel video-teleconferencing equipment for bidirectional live video to accompany our high-fidelity audio solutions.

From our San Francisco headquarters, we manage a network of more than 400 studio sites, maintaining connections and providing bridging between incompatible codec types. Three-way bridges and other more complex connections are facilitated at that same hub. We supply our affiliates with Macintosh or PC versions of our Electronic Directory, as well as direct-dialer software for various codecs.

Lucent Technologies (Murray Hill,

It's All In There.

Recipe For Greatness:

Start with the TEC Award-winning Eventide DSP4000 Studio Ultra-Harmonizer® brand effects processor, the unit which revolutionized effects processing with its power and musicality. Its flexible algorithm "building block" architecture is now further enhanced with free PC software which lets you create totally new effects right from your PC screen. *Wait, you're just getting started.*

Add the hundreds of program presets from the world's only professional guitar processor, Eventide's GTR4000. Don't forget to include the custom "virtual pedalboards", the Artist's Preset collection, the ground-breaking Colouration and Blend Distortion programs and the GTR4000's Effects Templates, for unlimited versatility. *Now you're cookin'.*

Next, add all the unique programs for post-production, radio and television applications created by sound designer Jay Rose for the Eventide DSP4000B. Unique sound environments, fantasy voices, pre-programmed sound effects, and superb quality Timesqueeze® stereo time compression and expansion are all part of the package. *But don't stop yet.*

Also include Scott Gilfix's new Alchemy 101 collection, an amazing, never-before-heard library of 225 program presets and audio tools. *Wow! You're up to 1000+ program presets in all. But you're still not through.*

Top it all off with a versatile, internal 87 second sampler. Sounds captured by the sampler can be combined within many DSP4500 presets. Several samples can be stacked within the unit and independently edited, pitch shifted and/or time compressed or expanded. Tap tempo looping, advanced stereo looping, and multiple looping capabilities are included.

Now you've got it: Eventide's great new, limited edition DSP4500 Ultra-Harmonizer. You just read what makes it so great. But what makes it a limited edition? Eventide has priced the DSP4500 to be an exceptional value. So exceptional that the number of DSP4500 units to be produced must be limited. *(You'd pay thousands of dollars more if you bought a DSP4000, all the add-in program preset cards and the internal sampler separately.)*

The Eventide DSP4500 Ultra-Harmonizer brand effects processor; it's *three* of the most versatile, most musical, most creative, most programmable signal processors ever built. It's over 1000 sonically impeccable program presets, plus the ability to create your own. It's the power of a built-in sampler. It's the greatest value ever in a professional processor for recording studios, live performance, radio and TV stations and post-production facilities. But most of all, it's the box that shatters all previous limits to give you that extra edge. Call Eventide at 201-641-1200 and we'll tell you where you can see, hear and buy the DSP4500.

Eventide
the next step

One Alsan Way, Little Ferry, NJ 07643 Tel: 201-641-1200 Fax: 201-641-1640
Email: audio@eventide.com Web: www.eventide.com

CIRCLE #024 ON PRODUCT INFO CARD

N.J.). *Chris Pfaff:* Lucent's elemedia AX Series of music and speech coders utilize both perceptual and source coding techniques to remove signal irrelevancy and redundancy. Perceptual coders model the listener and attempt to remove undetectable parts of the signal, yielding a high compression ratio while ensuring maximum quality in the decoded signal. The resulting products span bit rates from 8 to 128 kbit/sec, with quality ranging from AM to true "compact disc" quality.

Our AX128000 High Fidelity Stereo Music Coder provides better than CD-quality, assuming available bandwidth of 128 kilobits/second. The coder permits real-time transmission over a single ISDN line, over LANs or other wideband channels, and over the Internet. With a compression ratio of 11:1, it is ideal for high-volume storage or bandwidth-efficient delivery and playback of high-fidelity music. An integral bit stream transport layer (headers, error protection and synchronization bits) provides error concealment for channels with up to five percent packet loss in real-time network playback environments. Host-based and DSP implementations of the AX128000P coder are available for a variety of platforms.

MUSICAM USA (Holmdel, N.J.). *Doreen Arleth:* MUSICAM USA—formerly CCS Audio Products—offers more than a dozen models of digital audio codecs that can transmit broadcast/contribution-quality audio around the globe using both switched and dedicated digital telephone networks such as ISDN/E1 and T1. We currently have more than 13,000 codecs installed worldwide. Our newest high-end stereo codecs—the CDQ Prima Series, introduced in 1996—can deliver the highest-quality classical music concerts, plus SMPTE timecode and high-speed data, all on a single ISDN 128 kbps connection. We do not offer any multichannel systems at the present time.

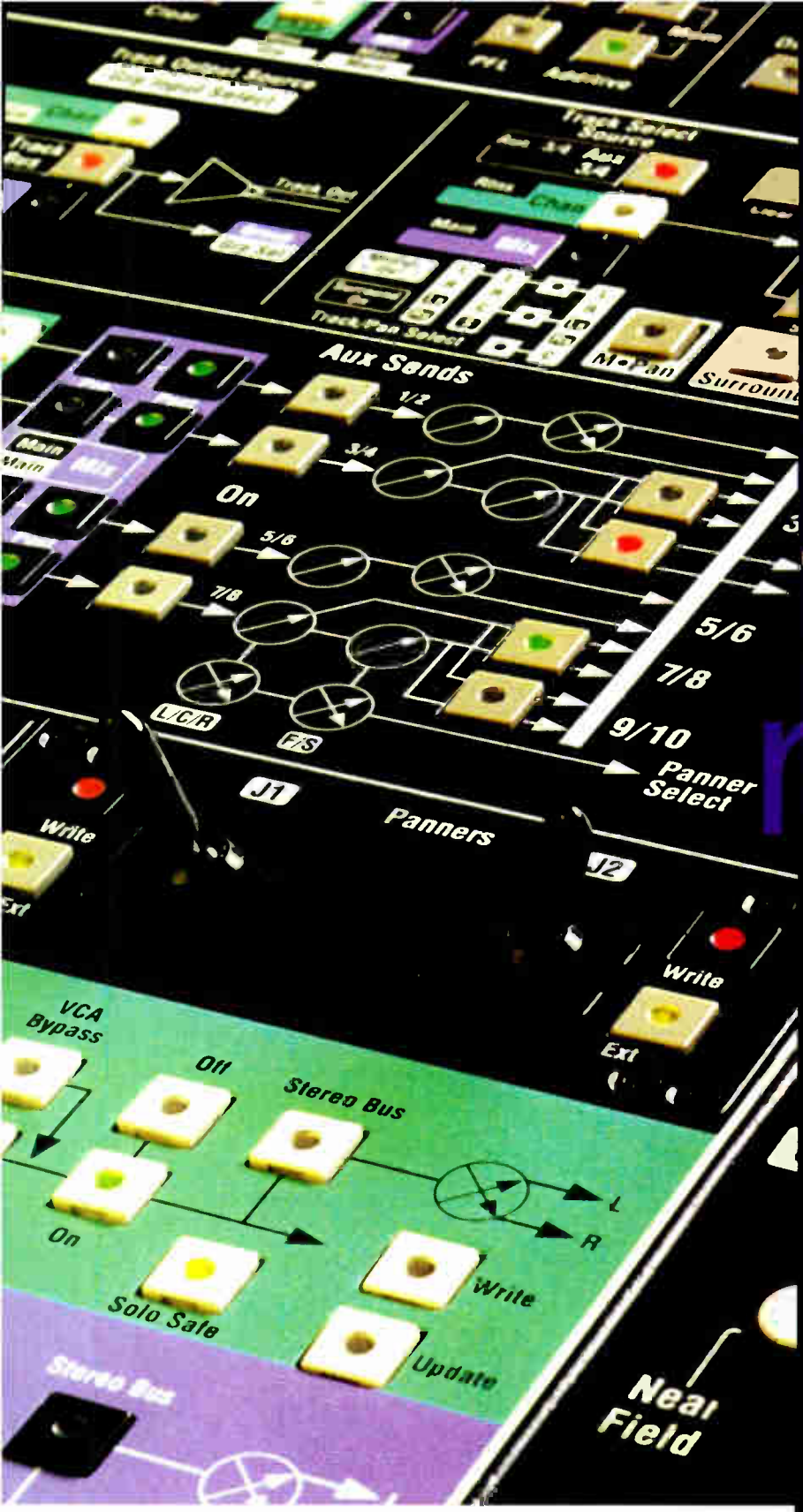
Telos Systems (Cleveland). *John Casey:* Telos offers the Zephyr Digital Network Audio Transceiver, and the new ZephyrExpress, a transportable ISDN transceiver plus mixer.

How long has your company been in this market, and what changes have you seen in the field over that time?

APT: APT has played a leading role in the market since 1989. The major changes that have evolved have to be the wide deployment of switched digital services such as ISDN, and the move from analog to digital audio among the studio and broadcast industry. More recently, broadcasters have recognized that there are limitations in using psychoacoustic-based algorithms and have moved to use a mix of algorithms—such as apt-X along with MPEG—depending on the particular application.

Dolby: Since the early 1980s, Dolby has been the leader in high-quality, spectrum-efficient audio coding algorithm development. In early 1991, engineers at Skywalker Sound, Lucasfilm's post-production division, utilized Dolby AC-2 codecs for post-production audio transmission over T1 lines between their facilities in Northern and Southern California. These early efforts evolved into Dolby Fax.

EDnet: EDnet is in its sixth year of operation. During that period, we have experienced first-hand the revolutionary changes from analog program lines and scheduled satellite links to digital T1 connections, then to Switched 56 dial-up service, and now to the nearly ubiquitous ISDN service. Codec technology



post touch mix feel

ELITE... the latest in Post Production tools from OTARI.

ELITE is Digital Control Technology that remembers what mixing is all about. Snapshot and Image Recall provide resettability of all console parameters. Multi-format Panning (up to 5 way) is available on each input with Automated Joystick controls. ELITE is PicMix™ ready with integrated machine control and Multi-stem monitoring.

Audition the ELITE from OTARI.

Elite

OTARI®
The Console Company

OTARI's exclusive Active Block Diagram display shows signal flow at a glance. Fader & Mute Automation provided by the new Otari Eagle™ Automation System.

SEE US AT NAB BOOTH #10341

Otari, Inc.
Japan
Phone: (81) 4-2481-8626
Fax: (81) 4-2481-8633

Otari Corporation
USA
Phone: (415) 341-5900
Fax: (415) 341-7200

Otari Deutschland GmbH
Germany
Phone: 49-(0) 2159-50861
Fax: 49-(0) 2159-1778

Otari Singapore Pte., Ltd.
Singapore
Phone: (65) 284-7211
Fax: (65) 284-4727

Web Site: www.otari.com

CIRCLE #022 ON PRODUCT INFO CARD

and implementation have been refined, though the basic Dolby, apt-X and MPEG algorithms have not changed much. Prices of equipment and connections have come down. New Internet applications such as Liquid Audio and RealAudio have been introduced that complement the bidirectional, point-to-point ISDN audio connections.

Lucent: elemedia has been in the market since 1996. One obvious change is that people are asking for better and better quality at lower and lower bit rates. Another is the advent of embedded coding, which means that you can encode music and provide in the same bitstream a decoder that understands the data.

MUSICAM: MUSICAM USA began design and manufacturing of broadcast-quality audio codecs in the United States in 1988. The Micro, developed for the CBS Radio Network, was our first audio codec for the Switched 56 telephone network. Our first stereo codec, the CDQ2000, was introduced in 1991 and was the first codec to make it possible to send stereo audio across the ocean without relying on expensive satellite link-up.

Since 1991, we have seen more and more features and capabilities designed

Crossing the Atlantic with "Titanic"

Magmasters Sound Studios Ltd. (London) is tucked away in St. Anne's Court, once home to Trident Studios and only a stone's throw from the original site of the Marquee Club. Magmasters houses ten separate studios, all equipped with AMS AudioFile Spectra systems, and a variety of tracking and mixing facilities including Dolby Stereo and Dolby Surround mixing rooms and a Sonic Solutions mastering/editing room. According to Magmasters managing director Steve Cook, a mainstay of the company's business is mixing sound for TV features and drama series in DTS surround format, but Magmasters frequently links with studios in Hollywood for long-distance ADR sessions.

"Using ISDN, we can allow actors who are on location in the UK to complete ADR chores without returning to the U.S.," says Cook, citing Sylvester Stallone and Julia Roberts as examples of talent that has looped in SoHo rather than return to Hollywood. The process varies from project to project but typically involves an ISDN link to transmit timecode, locking picture in London and Los Angeles simultaneously, and a monitor feed for the production personnel in L.A.

Magmasters also provided ADR services for director James Cameron while he was posting *Titanic*. Several of the British cast members, including Kate Winslet, were required to re-record dialog, and *Titanic* ADR supervisor Hugh Wadell spent several weeks at Magmasters working with BAFTA award-winning engineer Tony Anscombe. Using a timecode-locked NTSC ¾-inch video for playback, Wadell and Anscombe created a pre-cue/swipe master each day before the voice artists arrived. Two Sony 7030 DAT recorders were used to back up the entire booking and to provide instant start capability for each take.

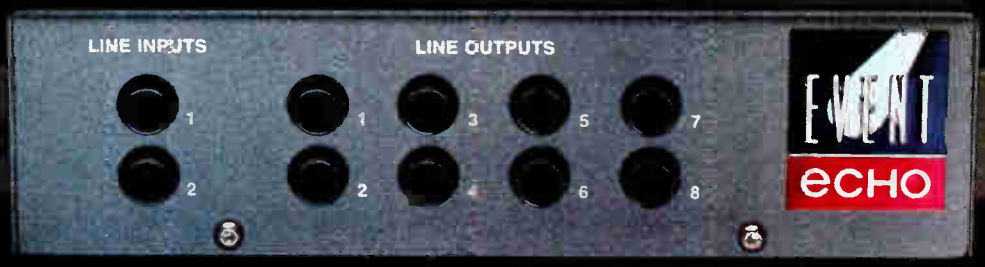
All recording and editing were performed on a Spectra, and Magmasters editor Scott Jones transmitted the edited dialog to Hollywood each evening via ISDN and Dolby AC2. Because of the eight-hour time difference, the latest dialog edits arrived in Los Angeles at the beginning of the working day and were immediately synched to picture and transferred to Cameron's current cutting copy. On the rare occasions that retakes were necessary, they could be scheduled for first thing the following day, resulting in fast turnaround.

"The system worked extremely well," says Anscombe. "With the director/producer's time at a premium, a big emphasis on quality and a tight schedule to maintain, ISDN provided the sort of flexibility we needed."

—Chris Michie

Gina™ Digital Multitrack.

Get Music Into Your Computer.
Get Music Out of Your Computer.
Make Records. Have Fun.



You've just written the masterpiece to end all masterpieces. The one that's destined to be the title track of your CD. Do you turn to your trusty four-track recorder? Not a chance. This isn't a demo—this is your life. Okay. So you call up a major studio and book a month or so of premium session time. (Thank goodness you're independently wealthy.)

Or you walk up to your PC, plug into Gina, and record, arrange, and master your music with unparalleled fidelity and precision. You make music without watching the clock. Without settling for demo quality. Without being restricted by numbers of tracks, outdated media, or proprietary, closed-ended systems.

Gina Digital Multitrack.
Enjoy.

$499, including multitrack recording/editing software.

Gina is 100% compatible with all of the best Windows 95 multitrack recording and editing software, including programs from Steinberg, Sonic Foundry, Cakewalk Music Software, Innovative Quality Software, SEK'D, and Syntrillium Software.

Is your PC ready for Gina? Download the Echo Reporter™ system analysis software from www.event1.com
Gina is designed and manufactured in the U.S. by Echo Digital Audio, an Event Strategic Partner

EVENT ELECTRONICS

CIRCLE #020 ON PRODUCT INFO CARD

into new generations of audio codecs. Our CDQ Prima offers plug-in ISDN modules for worldwide applications, will handle multiple coding algorithms such as MPEG Layer II, Layer III and G.722, variable sampling rates and flexible data rates. AES/EBU digital I/O is also standard on most of our stereo codecs.

Telos: Telos Systems has been involved in the transport of audio over telephone lines and DSP since 1985, and with ISDN digital network codecs since 1992. The Zephyr was released in 1993 as one of the first codec products to incorporate all ancillary gear—Terminal Adaptor and NT-1—required for an ISDN transfer in one easy-to-use box.

What are the most important professional applications you see for distance audio transmission?

APT: Our products are designed to enable "long distance" telecommunications carriers such as satellite, micro-

—FROM PAGE 34, HELLO, NEW YORK

out all the quirks so that things run extremely smoothly for all involved.

"Some [of the workstations] have ADR programs built in, some don't," Schwartz continues. "Since we have at least one of just about every workstation, we know how they like to work. We built our own ADR programs for the workstations that don't ship with them."

Individual talent seems to ask for individual setups as well. "Some want two beeps, some three, some people like a count off and others don't," Schwartz says. "The point is you have to be able to move smoothly around the needs of your clientele. We put two or three assistants on each session, and it takes time to set up an ISDN session because the technology is not totally locked in yet. Sometimes machines lock together very quickly, sometimes they don't."

Howard Schwartz Recording is part of several networks of facilities around the world that have leased or purchased some kind of codec for ISDN transmission. All of these facilities are connected by a directory, and clients are charged by the network. EDnet is primarily geared toward the motion picture and music industries, while Keystone serves the broadcast community.

Doc Kane has worked on some of the biggest-grossing animated features in recent times. When Buena Vista Sound needed a partner in New York, Kane went scouting. "I met with Howard, and he's a great guy who's totally service-minded," Kane says. "He was willing to work with us in any capacity. He has a great lead mixer, Bill Higley, who works in a very similar manner to me, and his room sounds great."

Kane tracks in conjunction with HSR "at least a couple of times a month when we're really busy." How does the talent feel about working this way on a regular basis? "They're okay with it. Obviously, nothing beats having a director, producer and talent in the same room, where a director can put his hands on the shoulders of the actor and coach him. But everyone realizes that budgets are very tight, and we don't always have the luxury of flying an actress who's completed her scenes back to L.A. to loop some new dialog."

Kane does have a wish list, however. "I'm really pushing for video streaming. I'd really like for us to be able to put another monitor in each room—besides the one used for playback of the scene that's being worked on—so that the talent and the producer or director can communicate with each other more directly."

Buena Vista Sound lays ISDN tracks directly to a Pro Tools 16-track system, with a DAT backup laid down simultaneously. "Sometimes we'll also drop tracks to an Otari MTR-90 24-track machine, as well," Kane says. And he admits that use of long-distance audio transmission has saved the day on more than one occasion.

"We were working on *The Jackal*, and were down to the last day of dubbing—literally the last reel—when we hooked up to France to get the last couple of lines of dialog on that last reel! We popped those lines into the dub the moment they came off our session, on a Sunday morning at around 6 o'clock, avoiding a delay of several days' time." ■

WANT TO BREATHE SOME FIRE INTO YOUR MUSIC?

GET READY FOR FIREWORX! THE EXPLOSIVE NEW STUDIO EFFECTS PROCESSOR FROM TC ELECTRONIC - THE MOST RADICAL YOU'VE EVER HEARD

TURN UP THE HEAT

FIREWORX

SPARK CREATIVITY

Experience the limits of your imagination. Shape the sound. Give it personality. Control it. Celebrate the discovery of an all-new kind of effects processor!

SIZZLING EFFECTS

Set your sound apart from the rest of the crowd with extreme multi-effects: Vocoder, Ring Modulator, Digital Cruncher, Resonator, Pitch Shifter, Fractal Noise Generator, Distortion, Reverse Delays, and more...- all packed up and ready to explode!

AUDIO PYROTECHNICS

Create an infinite number of effects for any style of music or sound design: Endless routing possibilities with more than eight internal and nine external modifiers.

BLAZING DIGITAL TECHNOLOGY

24 bit AD- & DA-converters. AES/EBU, SPDIF and ADAT™ I/O's are all brought together through TC's cutting edge DARC3™-chip technology.

t.c. electronic

ULTIMATE SOUND MACHINES

TC ELECTRONIC INC., 790-H HAMPSHIRE ROAD, WESTLAKE VILLAGE, CA 91361, USA · PHONE: (805) 373 1828 · FAX: (805) 379 2648
EMAIL: INFOUS@TCELECTRONIC.COM · HTTP://WWW.TCELECTRONIC.COM/FIREWORX
TC ELECTRONIC A/S, SINDALSVEJ 34, DK-8240 RISSKOV, DENMARK · PHONE: + 45 8621 7599 · FAX: + 45 8621 7598

CIRCLE #026 ON PRODUCT INFO CARD

wave and fiber-based transmission systems in both simplex and full duplex modes to be utilized for outside broadcasts—including the Winter Olympics in Nagano—as well as post-production, ADR, dubbing, auditioning and music production applications.

Dolby: Dolby Fax applications include film dialog re-recording; remote mix approvals for film, music, video, etc.; remote recording applications by music studios, such as overdubs; broadcast remotes and satellite distribution systems. Dolby Fax users include leading film and recording studios, record labels, video post houses, broadcast networks and musicians' private studios.

EDnet: ADR for the film and TV client; music overdubs and session supervision for the music recording studio; and voice-over and mix approval for the commercial and advertising clients. In each case, savings of time and unrestricted access to national talent have made using this technology a much more common way of doing business than when we started six years ago with seven pioneer studios.

Lucent: Mixing in near real time, listening/commenting and distribution for playback. These are very real applications today and will become more widely used in the near future.

MUSICAM: A growing number of our new customers are talent agencies and studios who want to service clients from outside of their immediate area. Also, successful talents who want to live away from major cities can continue to handle their major accounts in those cities.

Telos: Important broadcast professional applications have included remote broadcast pickups (RPUs), voice-over work, and station-to-transmitter (STL) backup links. The recording industry is now discovering ISDN as a means to have instant mix approval between cities, producers, agents and labels. Obviously, talent can contribute via ISDN, making fly-in-part deadlines easy to deal with. A virtual session.

What do you see as the most important attributes/features to consider in professional distance audio transmission systems?

APT: An inherent immunity to network bit errors without the overhead required by correction systems. Low coding delay for use in full-duplex operation environments and a high tolerance for both multiple and tandem coding. The preservation of the original audio quality is the ultimate benefit gained from these attributes.

Dolby: The two most important factors are audio quality, which is primarily a function of the coding algorithm(s), and the expertise of the system supplier.

EDnet: It depends on the client. Some of our clients depend on ease of use by nontechnical personnel. Others require the lowest operating cost. Still others require timecode synchronization or absolute highest quality. The most important aspect in choosing a codec is to consider who you are connecting to—identify what codec they have and make sure that you are compatible—and what is the application. You don't need 20kHz stereo and timecode capability to announce a ballgame on AM radio!

Lucent: Quality, quality, quality; that's the most important thing. The quality of the codecs used, the transport, the amount of bandwidth—all of these things relate directly to the end product.

—CONTINUED ON PAGE 222

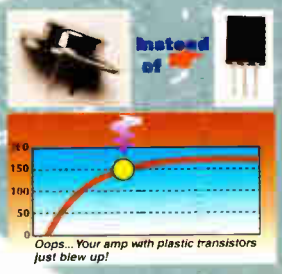
How do you improve the world's best selling power amp?

Popular wisdom says "don't change the recipe when you're making good biscuits." The reason the CS®800 has remained dominant for over twenty years is that we've only changed it a few times and when we did, we knew what to throw out and what to keep.

Very carefully!

What to Keep

The new CS 800S uses metal (TO-3) power transistors, because plastic devices just don't deliver equivalent thermal performance. While metal devices can be used right up to silicon junction failure, plastic devices degrade 50°C (90°F) sooner. This margin of "thermal headroom" can be the difference between a really loud finale and something more final.



Oops... Your amp with plastic transistors just blew up!

Books have been written about thermal management, but it all boils down to three things: air flow, heat sink area, and Δ T (the difference between the heat radiator and ambient air). The CS 800S uses a unique "parallel flow" heat sink alignment so every transistor receives the same cool temperature air for optimum Δ T.

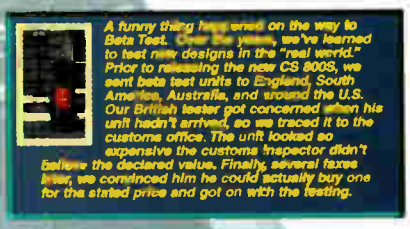
With two variable-speed 32 CFM fans cooling hundreds of square inches of heat sink area, and metal (TO-3) power devices (in the air stream), the CS 800S will play very loud for very long (years - not minutes or seconds).

The audio amplifier section uses proven Class A/B ultra-linear complementary topology with several improvements that further reduce the distortion/noise floor even lower than the already "audiophile quality" CS®800X (40 v/μsec, <0.03 % thd, etc.)

Our exclusive output circuit design (patents pending) completely compensates for amplifier output impedance. We conservatively spec damping factor at 1000 but it is only limited by component tolerance.

Modular inputs and outputs provide flexibility in configuring the CS 800S for your application. Binding post, or Speakon® outputs, it's your call. A clever input circuit accepts anything from XLR balanced line level signals to single-ended speaker level signals. Caution: don't try this with a non-CS amplifier; speaker level input signals will fry most amps on the market today!

DDT™ - A fast-acting limiter, triggered by clipping or current limiting, which prevents speaker/equipment damage, is probably our most copied feature. Only Peavey Electronics offers "true" DDT. (U.S. Patent #4,318,053)



What to Change

The new CS 800S is two rack spaces high and weighs only 23.5 lbs! The CS800S wasn't lightened by using a smaller power transformer and fewer output devices on a "trick" heat sink. We used our years of digital and "switchmode" experience to develop an advanced high frequency power supply. More than just a replacement for the old heavy iron transformer, intelligent load and thermal sensing dynamically interact to provide more power, longer, and more reliably than previous approaches.

This, combined with our more than 30 years of experience building the most reliable solid-state amplifiers in the world, allowed us to redesign the whole amplifier from input to output, merging the best of the old with the best of the new to deliver 1,200 watts of superior performance without breaking your back **or** your pocketbook. The CS800 just keeps getting better!

CS® 800S - Winner of Music and Sound Retailer's, "Power Amp of the Year" Award.

1200 W
23.5 lbs.

CS® 800S

CIRCLE #028 ON PRODUCT INFO CARD

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. only) send check or money order to: Monitor Magazine, Peavey Electronics Corporation, 711 A Street, Meridian, MS 39301 • (601) 483-5365 • Fax (601) 486-1278
http://www.peavey.com • AOL Keyword: Peavey • CompuServe: Go Peavey • ©1998

Music & Sound Awards are copyright of Testa Communications and The Music & Sound Retailer.

PEAVEY

Digital Insight control room A

Las Vegas STUDIOS

Capitalizing On the Casinos' Stage-Show Spectaculars, With an Emphasis On Music

BY DAN DALEY

Las Vegas is so quintessentially American. Wrought out of the desert back in the 1940s by Bugsy Siegel and some less-than-law-abiding citizens, it's become a municipal-sized adult theme park, illuminating both the light and dark sides of our national culture. Even as the town participates in the urban Disneyfication now deemed necessary to succeed in the family entertainment market, Vegas still evokes seamier images—this is the place, after all, that Nicholas Cage never really gets to leave.

Vegas may be cleaning up its image to get more of the family entertainment dollar, but it retains the glitzy productions that draw millions of visitors annually, from all over the world. And the casinos and hotels that put on elaborate shows are an integral part of what makes the Vegas pro audio business run: Most studios do some work for the stage shows, from scoring to effects to mixing/layback of pre-records. The headliners at the casinos, meanwhile—whether passing through for one-nighters or two-week stands—often use the city's studios for projects in progress. The casinos also attract film and television productions that use Vegas as a backdrop, in which case studios may pick up an ADR session or two.

BLEND OF MUSIC AND MOVIES

"The casino shows are a good part of the business here for everyone," says Lou Carto, owner of RMS, a two-room facility that opened 20 years ago. "Several companies here put together the show productions and are good clients of ours. The budgets tend to be slim for music recording but not for the casino shows. The production companies tend to come in and give us an idea of what they want in terms

—CONTINUED ON PAGE 50

Shipped with six different gambling games, the software-driven Odyssey may be configured to present any or all of them, depending on the casino operator's choice.

Silicon Slots

Hollywood Production Values Meet Silicon Valley Technology For a Las Vegas Gambling Experience

by Chris Michie

Digital audio is now commonplace in arcade and computer games. In fact, apart from mechanical noise and the occasional bells of pinball machines, almost every sound one hears in a modern arcade is reproduced from a digital storage medium. But, until the 1997 introduction of the Odyssey multi-game slot machine from Silicon Gaming (Palo Alto, Calif.), no one had thoroughly exploited direct-from-hard-disk streaming audio and video in order to enhance the gambling experience. Now, the Odyssey is in almost all major casinos in Las Vegas and Reno, and it's moving into Mississippi, Missouri and other markets.

"Most slot machines with a digital audio component have only 128K chips; Odyssey has a 4-gigabyte hard drive," says Silicon Gaming director of audio production Spencer Critchley. Featuring an integral speaker system and a custom enclosure designed to extend bass response, the Odyssey is an interactive slot machine that mixes the old-fashioned and familiar with the latest in high-tech. Though the traditional metal lever of the "one-armed bandit" is familiar, Odyssey also includes a touchscreen interface and a three-speaker sound system that locates music, effects and dialog in the center of the screen (a high-definition 26-inch video display rotated 90 degrees). Containing a Pentium PC equipped with 64 megabytes of RAM and the 4-gigabyte

drive, the Odyssey outputs 22kHz sample rate, 16-bit noncompressed audio, allowing for a sophisticated sound design that is both precisely matched to the onscreen images and thoroughly optimized for the intended playback environment: a busy casino floor.

With help from Silicon Gaming assistant audio producer Brian Alvarez, Critchley supervises the audio design of all Odyssey games, each of which features music, sound effects and dialog, all painstakingly assembled and mixed to provide a stimulating and complementary soundtrack. Initially hired to develop sound design for the Odyssey product launch, Critchley is now keeping to a fast-paced production schedule; the second batch of games was released in early March, and Silicon Gaming's plans call for another eight game introductions before the end of 1998.

CONCURRENT AUDIO DESIGN

Unlike the traditional post process for TV and film, audio design for the Odyssey is concurrent with the game design. "We feel we're building a complicated interactive experience, and we need to put a lot of time into testing our assumptions," says Critchley. "Since the game design is iterative, it's important to check our sounds with the assets during development."

At the beginning of a project, Critchley meets with the game's art director and producer, who are responsible for the visual "personality" of the game. "I'll come up with an audio design that supports the visual design," says Critchley. "Typically, I'll decide on the nature of the music, what sound effects are needed and what kinds of qualities they should have. I'm very much against that whole kitchen-sink, grab-bag of effects that yousometimes hear when sound isn't very carefully designed. I like to take a more organic approach and make sure that all of the sounds belong together, support the theme of the game and have the correct ambience."

Assistant audio producer Brian Alvarez (L) and Spencer Critchley, director of audio production at Silicon Gaming

Though the audio design process is concurrent with game development, it encompasses the three traditional components: music, effects and dialog. A typical game may contain as many as 12 musical cues or pieces and between 40 and 50 effects. Critchley often writes the game's main theme, but he hires an outside composer to produce the finished music. Similarly, Critchley often hires an independent sound designer for effects, giving overall direction and often supplying effects examples created by himself or Alvarez. Many of the games include characters, and Critchley typically gets involved in casting the voice actors and recording them.

"We seldom do finished music in-house," Critchley notes. "I don't feel that we're quite well enough equipped to do final production here—and we're usually too busy. We always have multiple games in production, so there isn't time for me to become absorbed in any one game."

To ensure that his audio designs will work in the real world, Critchley has recorded ambient sound in several casinos and re-creates their sound environments in his studio by means of a Cambridge Soundworks surround system. "It's a considerable challenge to make sure that quality audio is actually heard in the casino environment, where the noise floor is typically 75 dB SPL," he says. "You have to make sure that your sound is heard, without annoying people at the neighboring machine. One of our concerns is that featured and repetitive sounds must be identifiable but not annoying."

THE CONVENIENCE OF DIGITAL

Critchley's studio setup is centered around Pro Tools 4.0, on which he assembles and edits all of a game's various audio components. Mixes have to allow for the many different combinations of music, effects and dialog that can occur during a game. The Odyssey can play several tracks from hard disk at once, though this capability is effectively limited by the amount of animation being streamed simultaneously. "Typically, the system might be playing music, plus interface audio cues that are triggered when you touch the screen controls, and some dialog," explains Critchley. Audio playback is currently in three-speaker mono, though the tracks are recorded in stereo; future playback options may include stereo and 3-D formats.

Dividing the work between them, Critchley and Alvarez work side by side in a crowded studio, shuttling work in progress between their Pro Tools stations. "We're able to work very quickly because of the convenience of digital," says Critchley, citing instant lockup to digital video as an example. "Pro Tools sessions can be very detailed, with many sends and returns and EQ settings, but if you ever need to remix something, you just call it back up. We constantly back our files up to DAT and CD and keep a detailed history of all the work we've done."

Both Critchley and Alvarez view games in development in QuickTime, which offers frame-accurate sync for Pro Tools. Though Critchley makes extensive use of his Roland S760 sampler, Roland XP-50 keyboard and Lexicon PCM 80, most "outboard" effects are actually created with Pro Tools plug-ins such as Waves' EQ, compression and reverb modules. Trading files with out-of-house sound composers is relatively easy. "Because Pro Tools is a standard, it's easy to ship files back and forth," says Critchley. "In the past, you'd be sending DAT tapes, whereas now we're

digidesign®

A division of Avid

Credits

Garbage

Beck

Smashing Pumpkins

Nirvana

Sonic Youth

U2

"Pro Tools takes our music into the next dimension"

– Butch Vig

Butch Vig has a few ideas about turning Garbage into platinum.

"Garbage records a lot of garbage...loops, guitar effects, vocals, and noise... With Pro Tools, we track everything into the system...then go in and tweak it out. We use a lot of Plug-Ins like D-Fi, GRM Tools, and TC Tools. The flexibility of the automation allows us to be extremely creative. As we work up a song, we're processing and mixing all the time, because it's a lot easier to experiment than with an analog board or tape."

No rewinding. No take limits. No wasted time on session recall. No wonder creativity soars.

"Recording should be fun, and Pro Tools has brought back the excitement of working in a studio again. I can't really see us ever turning back."

For more information about Pro Tools and Third-Party Development products, call 1.800.333.2137 ext. 357 for a free Pro Tools video, or to schedule a free demo.

www.digidesign.com
www.avid.com

Butch Vig, Producer|Drummer
Garbage

Foreground Photo: 1998 Stephane Sedano
Background Photo: 1997 Ellen Von Unwerth

getting our contractors to post work-in-progress to an FTP site. We're able to make several revisions in a day, which is a tremendous time savings.

"The extra challenge of interactivity is fascinating and really differentiates the task of designing a game from traditional TV or film," summarizes Critchley. "Odyssey is a real merger of Hollywood production values, Silicon Valley technology and Las Vegas-style gambling—something that's never been done before." ■

Chris Michie is Mix*'s technical editor.*

—FROM PAGE 46, LAS VEGAS STUDIOS

of broad strokes, and they let us paint the picture. And there's movie work—we did some of the work on Chevy Chase's *Las Vegas Vacation* movie."

RMS (it stands for Related Music Services, although Carto doesn't mind when musicians take it for Root Mean Square) works on a blend of music recording and show/post work typical of many Vegas studios. Like many studio owners here and elsewhere, Carto, a Pittsburgh native who came to Vegas as a musician two decades ago, has other revenue streams—in his case, a music composing and production business that also uses his studio.

The RMS technology complement—which includes Trident Series 80 and TSM consoles and 3M tape machines (a first-generation digital multitrack deck)—reflects the state of the art for much of Las Vegas' studio community. The proliferation of home studios has contributed significantly to keeping rates below an average of about $100 per hour for most studios. On the other hand, notes Carto, the ADAT and DA-88 formats typical of project studios have also proven popular with show production companies, allowing them to take multichannel stem mixes of shows on the road to Atlantic City and the dozens of other locations that are opening throughout the country as more states legalize casino gambling.

RMS made what Carto characterized as a "huge" investment in ADR equipment when the television series *Crime Story* was shooting in Las Vegas a few years ago. "When they lost their budget, we almost lost our butts," he recalls. "The lesson is, don't buy for the client; buy for your own needs."

Sonsongs Studio is owned and run by T-Bone Demman, a longtime Vegas resident. The studio opened in his garage in 1976, and when the airport expanded in 1990, it bought out his homestead, allowing Demman to relocate to larger quarters. Now with two rooms (a Soundtracs Jade console, Otari MX-880 and 24 tracks of ADAT in A, and a Soundtracs Quartz and 32 channels of ADAT in B), Sonsongs remains a dedicated music studio, supported by artists passing through (several of the *Duets 2* Sinatra tracks were done there) and by residents. Demman notes that a fairly broad array of artists—including Kenny Rogers, Gladys Knight, Barry White and Slaughter—live in the area and have worked at the studio. "We also pick up some work from the casinos, but it's virtually all music work," he says.

Most of the studio owners in Las Vegas seem to have accepted the reality of home studios and their economic impact. Demman, however, is less amenable and plans to make an issue of it with the Las Vegas zoning commission at some point in the near future. "When I had the studio working out of the garage, I was getting $65 per hour for 24 tracks," he states. "Now, in a place

NEUTRIK INNOVATION

NOW

NP*RCS
Compact 1/4" Right Angle Plug
Available in mono or stereo
The professional right angle plug with nickel plated die-cast shell and chuck-type strain relief. Includes plastic sleeve for optimal cable protection.

EaZy Con Series
XLR Cable Connectors
The EaZy Con "Z" Series includes soft rubber coated surfaces for durability and positive handling on the female, solder filled contacts, easy assembly - mechanically and electrically, self-locking cable retention, a coaxial locking version and hard gold plated contacts. The FZL version is designed for analog/digital transmissions.

YOU'RE

Series/B Series
LR Receptacles
he A Series is made from high-impact glass einforced UL94V-0 proof plastic with hard gold lated contacts for long life. The B Series has a etal housing with mating shell contacts at the ntrance to provide complete RF protection. emales have two grounding options available.

Power Con
A.C. Connector System
This new A.C. connector comes with a fast and easy locking system, 20A rated current capacity, chuck type strain relief and solid contacts with screw type terminals. Power Con meets all prevailing safety standards.

New PC Mount 4 & 5 Pin
XLR Panel Mount Receptacles
Features same size panel cutout for male and female, horizontal PCB mounting with M3 threads or by self-tapping PT screws. RF protected.

CONNECTED℠

Neutrik's commitment to connector technology is well known for the wide range and superb quality of its product line.

Now, Neutrik is pushing this technology to new levels by challenging itself to create additional innovative products and enhance existing ones to meet the changing needs of its ever expanding markets.

Look to Neutrik to meet the demands of your next application. Contact Neutrik USA or your local distributor for additional information.

NEUTRIK USA
CONNECTING THE WORLD

195 Lehigh Avenue, Lakewood, NJ 08701-4527
Phone: (732) 901-9488 Fax: (732) 901-9608
E-mail: neutrikusa@aol.com
Web Site: www.neutrikusa.com

CIRCLE #031 ON PRODUCT INFO CARD

five times the size of that years later, I'm fighting for $75 per hour. The [project studios] are hurting the business here. Las Vegas requires studios to have a business license. But you look at all the little studios in the Yellow Pages here, and most of them don't have licenses."

Project studios also have acted as a brake on technology and facility upgrades to a degree, Demman and others argue. "If you put an SSL or a Capricorn into here, you're still gonna fight for that $75 per hour," he says ruefully, noting that he recently installed a Lexicon 480L signal processor. "I had one act come to me to block-book nine days and I told them the rate, and they wanted to reduce it by about one-third for the block booking. If there was a Neve in here, it would not have made a difference because that's the kind of pressure you constantly get on rates. There's not enough business coming in from out of town, and the local music business won't carry it."

Sonsongs Studio owner/operotor T-Bone Demman

THE L.A. FACTOR

But Demman touches on another aspect of Las Vegas—its proximity to Los Angeles, which is less than 300 miles away down I-15. The two cities seem to exist on different planes, perhaps in different universes. But some studio owners in Vegas consider L.A. a potential if unwitting ally. "People don't do entire projects and records in one place anymore," observes Demman. "If people want to come here to track and then go to L.A. to mix, I feel that I can compete with Los Angeles in that regard."

So does Rob Devlin, co-founder and co-owner of Digital Insight Recording. Insight started out as the private studio for a band that Devlin played in, but it took on a life of its own after the band played itself out in 1995. "We weren't happy about the studios we found in Las Vegas," says Devlin. "We were basically former clients who were disgruntled and decided to start our own place."

The current two-room facility seems at first glance to be typical of the city: an Amek BIG console in Studio A and a

It took this man a decade to find his next reference monitor.

"I've been after this type of clarity for over ten years."
—Elliot Scheiner
(producer, engineer extraordinaire)

How long will it take you?

After over a decade of commercially successful and critically acclaimed work, changing an important part of your formula wouldn't seem rational. Unless you had very good reason. And Elliot's reasoning may be familiar to you. "Although I trusted the monitors I had been using on every project, including six Grammy nominated albums, I didn't particularly like their sound. I was always looking for something I could trust but smoother- easier to listen to and especially louder."

Then he listened to his work on a pair of Exposé E8s. Now he's using them exclusively on his current projects, the next releases from Steely Dan, Fleetwood Mac, John Fogerty and Toto. "The moment I heard the first sounds come out I knew these were right." What he means is the exceptional accuracy and ultra-low distortion Exposé offers to track and mix with confidence. With the smoothness and musicality that would otherwise make long sessions difficult.

With the advances in digital recording, power and punch are no longer an option, they're a requirement. And Exposé goes louder and lower than your alternatives. As Elliot puts it, "Some of the other high-end, powered monitors sound 'pretty' but I can't use them because they won't play loud enough and they lack the low-end for most of the material I work on."

He was also impressed by the expanse and depth of the stereo image they create. Elliot says, "I don't know how they do it, only that they seem to do it better than anyone else. Very, very clear. Everything is distinctly audible and natural. It's pretty amazing how they open up a mix."

So should you go out and buy a pair of Exposés today just because Elliot Scheiner uses them exclusively? No, but you owe it to your next project to run down to the nearest KRK dealer and get a demo for many of the same reasons.

Exposé by KRK. Dramatically nearer to the truth.

For more information on Exposé E7 and E8 Powered Reference Monitors, the Expose 5.1 Orbital Surround System or the name of the KRK dealer nearest you.

SEE US AT NAB BOOTH #12164

Exposé
Dynamic Expression.
by KRK

Distributed in the U.S. by Group One, Ltd.
East: 516-249-1399, West: 760-360-8511
World Wide Web: http://www.G1LTD.com

Manufactured by KRK Systems, Inc.,
714-841-1600, FAX: 714-375-6496
World Wide Web: http://www.krk sys.com

CIRCLE #033 ON PRODUCT INFO CARD

Mackie 24 in Studio B, supported by vintage Studer analog and ADAT digital recorders, as well as a Sonic Solutions system for mastering, with an average recording rate of about $55 per hour. However, Devlin and his partner benefit from having moved the studio six months ago into a large building that had been designed by Vincent Van Haaff and intended for use as a high-end personal studio. Because the plug was pulled before the studio could begin operation, "We moved into a ready-made situation," says Devlin. "The studio has a higher level of design than any place in Las Vegas—three-phase power and a house ground. The physical plant is as good as anything in Los Angeles, and as a result, we think we can offer people an alternative to L.A. and create something that Las Vegas never had before: a great studio environment. This is more like an L.A. or New York type of facility, transplanted to Las Vegas.

"I don't see us putting a half-million-dollar console in here," Devlin continues. "I don't think you'll ever see a 9000J [in Las Vegas]. I think a lot of people in L.A. and New York regret having paid that kind of money for a console, because they're not making any money paying that kind of overhead. But artists get used to that kind of console. I think we're close enough to L.A. to get artists and producers to come here to track, to get away from L.A., and then go back to mix. L.A. has always been close, but that kind of relationship hasn't always been there because there were no studios here that had amenities like separate lounges for artists and showers in the studios."

Devlin acknowledges that Las Vegas studios, including his, will continue to rely on artists passing through for much of their major-label work. But he concedes that Las Vegas is an unknown quantity to much of the record-making world. For example, Devlin tells us that when country artist Randy Travis was in town for a rodeo event and performance, producer and Dreamworks Nashville president James Stroud flew engineer Julian King to Las Vegas to reconnoiter Digital Insight. "They just wanted to make sure that everything was at the level they were used to. Julian King was thrilled with the studio, and we ended up recording half the vocals for Randy's album here." Devlin hopes that as artists like Travis pass though his facility, they'll spread the word.

As Devlin points out, Las Vegas has little in the way of a home-grown record business, mainly, he says, because the city's image is not based on original music. "And in the end, that means less money from major labels and less to push studio growth," he says. "Artists coming in from Los Angeles can help change that."

Not everyone agrees that a relationship with L.A. is critical to growth. Paul Badia's Powerhouse Recording moved to a new and larger location in January, with a 54x50-foot room that Badia hopes will bring in more scoring sessions and more film work in general. (Powerhouse's earlier incarnation did much of the prerecords for *Las Vegas Vacation*'s soundtrack, as well as the trailer and end title sequence for *Demolition Man*.) But, says Badia, "Most of our work is start-to-finish projects. We don't have to rely on people coming from L.A. to track and then leave. If that kind of relationship develops, then fine. But it's not necessary." Badia also believes that Las Vegas' non-Neve-and-SSL environment is a plus; he says his D&R Avalon cost as much new as a vintage Neve and that clients regard it as an attraction. "Along with the Stephens 2-inch deck I have, the audiophile level of this studio is quite high," he says. "This studio can make a living from Las Vegas."

Music recording and post-production often walk a fine line in Las Vegas. Bill Ebmeyer, manager at Oakdale Post Audio, says most of his business comes from broadcast advertising and film work. The studio handled some of the ADR on the films *Beauty and the Beast* and *Casino*. "[Director Martin] Scorsese's standards are high, and you'd better be good if you want him to work in your place," says Ebmeyer. But, he adds, "You can't compete with L.A. for post or for music. Any block in Los Angeles has Neves and Studers on it. Bands aren't signed out of Las Vegas. This is the adult Disneyland; people come here to play. What you can be is a complement to L.A. When people come through, give them what they need. We did Dishwalla remote on the 'Rockline' program when they came here for the Billboard Music Awards because we put in ISDN. You have to be ready. When you're working with Scorsese or a SAG actor, the session can't start five minutes late. For a long time, I think, there wasn't the mentality here that could accommodate that. But I think now there are some people and facilities here that are ready to make that jump. A lot more could start to happen in Las Vegas." ■

AMEK

A Harman International Company

Soho

Digital Mixing Console

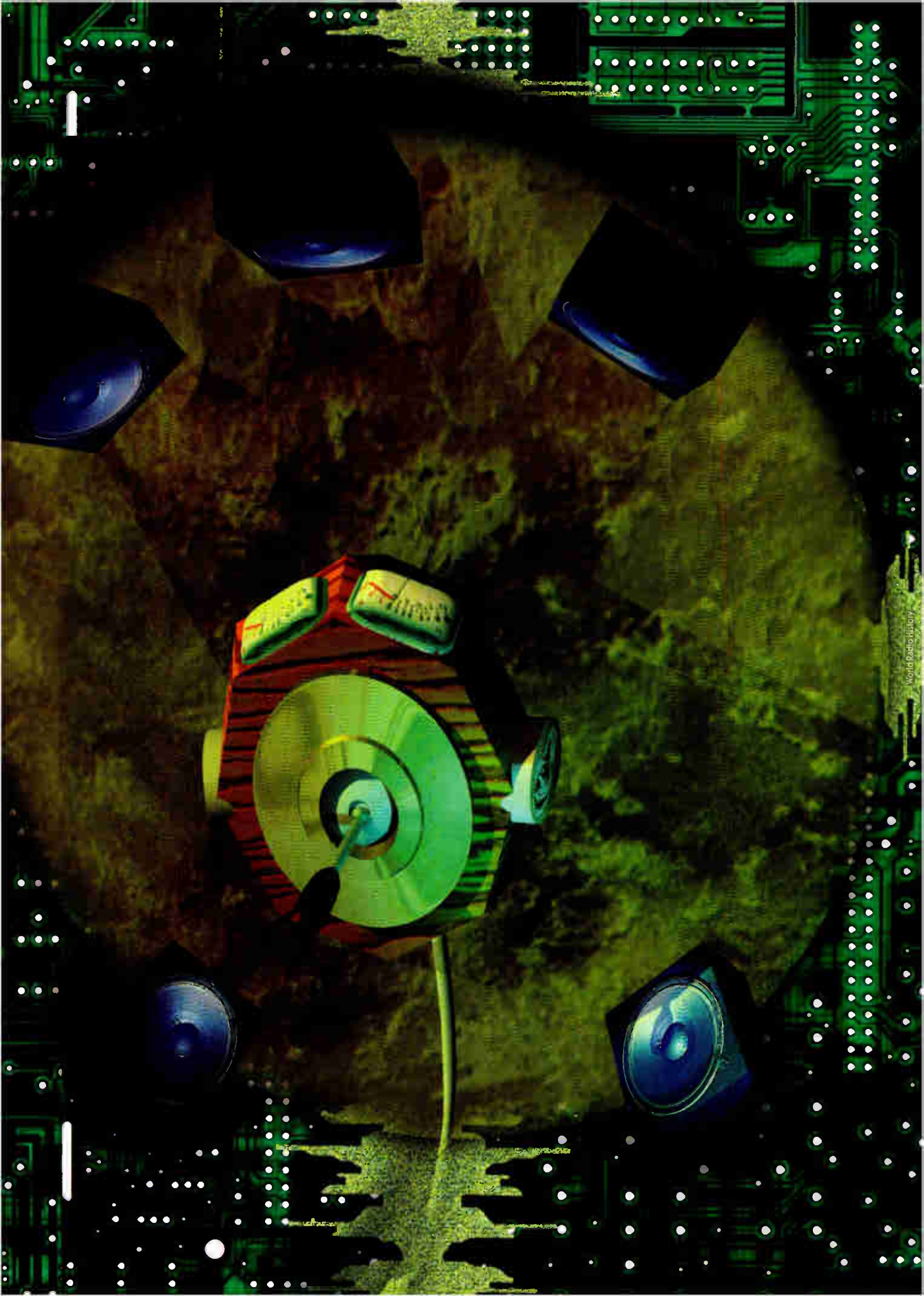
USA – LA
Telephone: 818 973 1618
Facsimile: 818 973 1622

USA – Nashville
Telephone: 615 360 0488
Facsimile: 615 360 0273
Tollfree: 888 286 9358

UK – Head Office
Telephone: +44 (0) 161 834 6747
Facsimile: +44 (0) 161 834 0593

- Up to 80 audio input sources
- 32 AES/EBU 24 bit Digital Inputs
- 8 or 24 Analogue Line Inputs, inc. 4 Mic/Line inputs
- 20 Additional Derived/Multiplexed Input Sources
- 48 Mix Channels
- Stereo, LCRS and LCRSS-B (5.1) Mix and True Monitoring capability
- Dual Mode Buss Architecture for DAW/MDM Multi-channel recording
- 8 or 16 Motor Faders
- EQ – 4 Band Parametric
- Dynamics – Compressor, Limiter, Expander/Gate
- Dynamics and Snap-shot Automation of EQ, Dynamics, Faders, Pan, Mute, and Image Control
- Automated/Fully Assignable Joystick
- Dual Machine Control Ports plus MIDI machine control
- Multi-channel FX Rack (Reverb, Delay, Chorus, Flanging, 6/12 Band EQ, Mastering Compressor)
- 19 inch Pod – a rack unit option to house DAW controllers or outboard FX devices

Soho is the latest addition to Amek's range of fully specified digital mixing consoles. Developed specifically for audio post production applications, Soho is designed to be integrated with any existing or favoured Digital Audio Workstation. The sleek and ergonomic design and highly impressive specification makes it ideal for companies who require a cost-effective digital console, while maintaining the quality, professional image and functionality of their post production operation.



THE SURROUND SOUND DILEMMA

Solutions for Older Consoles

Sooner or later (and probably sooner) somebody's going to call and ask whether your studio can do surround sound mixing. As surround mixing becomes more commonplace for music, sound for picture and multimedia sessions, now is a good time to re-assess your studio hardware and look at your options.

by George Petersen

ILLUSTRATION: TIM GLEASON

The obvious requirement for surround work is a multiway (LCRS, 5.1 or 7.1) speaker playback system. If you intend to create a matrixed surround mix, such as for the Dolby Stereo format, a surround encoder/decoder from Dolby Laboratories, RSP Technologies or Ultra Stereo will be necessary. For the occasional session, these items can be rented on an as-needed basis; however, unless your console was designed for surround sound work, you'll probably need an upgrade.

Assuming you have enough assignable buses and lots of patching capability, it's possible to do surround sound mixing on any console. However, anyone serious about surround production will require joystick panning, comprehensive to/from bus routing and the ability to solo/dim/mute any output bus for accurate monitoring.

Most consoles today provide surround mixing/monitoring capability, either as stock or optional packages. Surround-ready models include the Amek Galileo, AMS-Neve's VFX, the Euphonix CS-3000F, Harrison's MPC, Sony Oxford, and SSL's Avant, SL 8000 G+ and OmniMix.

If your console is not on that list, the best way to start your quest for surround is by contacting the console manufacturer directly. Some manufacturers' surround packages are retrofittable into non-surround models; for example, current SSL SL 9000 J consoles are now prewired to accept surround mixing options at a later date.

AMS-Neve offers its eight-way scoring panel option as either an option or retrofit package for both VX analog consoles and Capricorn digital mixers. Similarly, the PEC/Direct switching panel, which provides simplified access to the Logic 2 digital board's surround features, can be

THE SURROUND SOUND DILEMMA

ordered with the console or added later. Joysticks are available as an upgrade option for all AMS-Neve digital desks.

The M·Pan® multiformat panning option for Otari's Elite console offers two- to five-way panning via local panpots or automated joystick surround panners.

Retrofittable on any Euphonix CS-2000 or CS-3000, the company's Hyper-Surround™ hardware and MixView 3.1 software supports LCRS, 5.1 and 7.1 formats, and includes automated surround panning and optional trackball control.

Another alternative is the custom route. for example, John Musgrave of MAD Labs (818/353-6199) specializes in surround mods for music consoles, including a plug-in replacement center section for Neve VR mixers.

It's essential that what you hear through your monitoring system is identical to the signal going to the multitrack record buses.

ROUTING AND MONITORING

When upgrading your console for surround sound, you face two separate issues: The first task is to create a workable environment for assigning, routing and panning signals to any of the surround sound outputs. The second is devising a scheme for monitoring the various control room loudspeaker systems, whether mains or near-field. Proper monitoring is critical, especially for surround sound. It's essential that what you hear through your monitoring system is *identical* to the signal going to the multitrack record buses.

However, unless the console you now own is either very assignable or very current, chances are that manufacturer-supplied surround options are unavailable. Fortunately, there are a number of third-party suppliers offering add-on products that provide affordable alternatives.

MARTINSOUND MULTIMAX

Announced earlier this year, the Martinsound (Alhambra, Calif.) MultiMAX™ MultiFormat Monitor Controller is based on Neotek's decades of experience in designing and building consoles for music and film, and is designed specifically to provide surround sound monitoring control for all popular formats. The system uses up to eight existing console group or multitrack buses to output surround sound mixes in LCRS-, 5.1- and 7.1-channel formats. The single-rackspace MultiMAX control box provides for gain control across the monitor chain, insertion of an encode-decode processor and individual speaker muting.

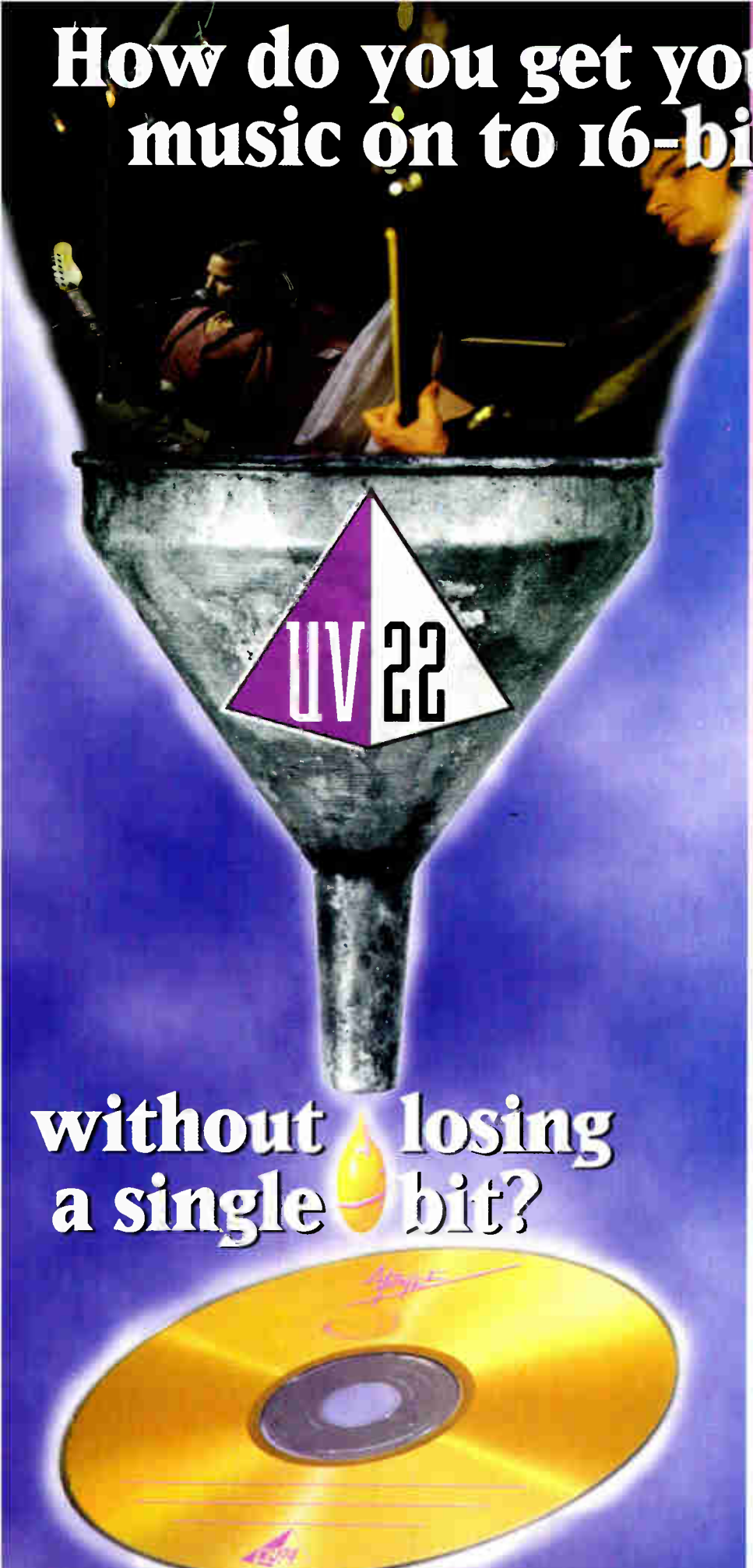
The unit's 5.1-channel mode accommodates both Dolby Digital and MPEG-2 formats for DVD, including Stereo Downmix simulation as well as Dolby SR-D and CP65 for film applications. The 7.1 mode handles Sony SDDS and IMAX formats.

MultiMAX enables the summing of multiple premixes into the monitor audio and logic inputs, which simplifies the creation of a film-style monitor system with Playback/Direct and mute/solo on each of the eight inputs—all via internal solid-state switching. Other features include comprehensive control of up to three loudspeaker systems (mains, near-field and mono TV); speaker muting and individual level trims; direct bypass to standard studio L/R monitors; and insertion of matrixed encode/decode system into the monitor path only. All of MultiMAX's audio connections are +4dB balanced, on D25 sub connectors. Pricing is $1,995.

OTARI PICMIX

The PicMix™ Mix-to-Picture Monitor and Panning Systems from Otari (Foster City, Calif.) is recommended by several leading console manufacturers as a solution to both routing/panning/busing and surround monitoring problems in existing consoles. Developed by the same team that created the state-of-the-art Virtual Monitor System (VMS) for Otari's Premiere film console, PicMix offers greater functionality at a fraction of the cost and integrates calibrated multichannel sur-

How do you get your 24-bit music on to 16-bit CD...



without losing a single bit?

THINKING OF GOING HIGH RESOLUTION? Are you considering upgrading your digital system, for improved detail and overall quality? Remember, you'll still have to master to 16-bit for DAT and CD, 20-bit for other formats — and lay tracks on your 16-bit MDM. So how will you keep that clear, pristine 24-bit sound?

The answer: Apogee's UV22®. It's used by nine out of ten of the top mastering facilities in the US, on over 90% of their albums — that's a load of hit records.

UV22 takes a high-resolution digital audio signal and flawlessly translates it on to media like CD, retaining virtually all that 24-bit detail. *UV22* is not dither, it's not bit-mapping, and it's not noise shaping. It's magic*.

Originally available in our *UV-1000* mastering system, *UV22* is standard on our hardware products such as the *AD-8000* and is available in our *MasterTools®* plug-in for *Pro Tools®*. Now it's increasingly available in third-party products, like Mackie's *Digital 8•Bus* console and SADiE's workstations — with many more to come.

Whether you're mastering to DAT or CD, or tracking on a 16-bit digital multitrack, *UV22* gets your high-resolution music on to your master — without losing a bit.

Apogee's *UV22*. Ask for it by name.

* "Any sufficiently advanced technology is indistinguishable from magic" – Arthur C. Clarke.

APOGEE
ELECTRONICS
www.apogeedigital.com

APOGEE ELECTRONICS CORPORATION,
3145 Donald Douglas Loop South,
Santa Monica, California 90405, USA.
Tel: +1 310/915-1000 Fax: +1 310/391-6262.
Email: info@apogeedigital.com.

CIRCLE #037 ON PRODUCT INFO CARD

THE SURROUND SOUND DILEMMA

round sound monitoring and panning into virtually any stereo audio console.

PicMix is divided into two parts: The PicMix Mix-to-Picture Monitor System handles the surround monitoring chores, while the PicMix Panning System is a field-expandable accessory adding automated surround panning to any console.

The PicMix Mix-to-Picture Monitor System consists of one Monitor Master Rack and one to three Monitor Slave Racks. Each Monitor Master Rack handles eight audio channels, each with two audio inputs with provisions for silent A/B input switching (Bus/Tape, Direct/Playback, PEC/Direct, etc.). Each channel is assignable to the eight monitoring buses, and any collection of assignments can be stored as a panel preset for instant set up recall for future sessions.

Calibrated insert points with in/out switching are provided for matrixed encode/decode systems such as Dolby DS-4. The eight output buses feed to the monitor amplifiers through a calibrated monitor level system, permitting overall as well as individual speaker SPL adjustments. Three SPL presets are provided for assurance of monitoring at the proper specified SPL level of the format being posted.

The Monitor Controller and the Machine Control Interface options provide full virtual remote control for PEC/Direct (Bus/Tape) switching, Record Punch In and Out, Solo and Mute, as well as recorder motion control. One or more monitor controllers can be mounted in, or at, the console. Each controller has eight physical control strips assigned in a virtual manner to the machine tracks of the recorder(s). Any control strip can be set up as a machine master or a link master, allowing hidden machine tracks to be layered beneath it. The monitor controller also permits solo and muting of the eight output buses, and the selection of SPL monitor level either in dB increments or from the three calibrated presets.

PicMix connects simply and quickly into virtually any console environment and communicates directly with Otari's Concept 1 console via an optional interface. PicMix Monitor Systems are priced from $5,495.

The PicMix Mix-to-Picture Panning System consists of the Panner Audio Rack and one or two Panner Controllers. The controllers are typically mounted in or on the console. The audio rack accommodates from one to six panner modules, each of which has two balanced audio inputs. Each dual panning module in the Panner Audio Rack can be configured as a 3-, 4- or 5-channel panner, plus a second 3- or 4-channel panner, or as a single 7- or 8-channel panner.

Each Panner Controller has a pair of panning joysticks, plus a pair of rotary panning controls. Each panner control set (joystick or knob) can be assigned to any of the panner modules in the audio rack for maximum flexibility.

Each of two 64-LED positional readouts can be assigned to any of the control sets for visual confirmation of audio positioning within the panning soundfield, in any panning/format mode. Also, each joystick may be auto-

Awe Inspiring Power.

Studer D950
Digital Mixing System.

- 40 bit FP DSP Core supports up to 256 Channels with >950dB dynamic range.
- Complete routing system supports any input/output configuration (mic/line, digital/analog) from remote locations connected via MADI fiber links.
- "Analog-like" console surface for fast and familiar operator interface.
- Auto Touch dynamic automation - reconfigure and save the console layout: EQ, dynamics, pan, delay, aux send, fader, mute, routing – everything.
- D950 console configurations available for Music, Film/TV post or Broadcast.
- Surround mixing in all formats (LCRS, 5.1 and 7.1) with panning, monitoring, Rec/Dir machine control - automated joysticks available.
- Studer exclusive VirtualSurround™ Panning (VSP) allows the operator to create a virtual 3-D listening space, from a small room to a large hall.

Complete Digital Solution

STUDER
PROFESSIONAL AUDIO EQUIPMENT

H A Harman International Company

Studer U.S., Telephone: (615)360-0465 ▪ Fax: (615)360-0274 ▪ Web site: www.studer.ch
Studer Professional Audio AG-Zurich, Switzerland, Tel: 011 41 1870 75 11 ▪ Fax: 011 41 1840 47 37 ▪ Canada: Tel: (416)510-1347

CIRCLE #039 ON PRODUCT INFO CARD

THE SURROUND SOUND DILEMMA

mated by interfacing to two channels of the console automation system, or through an external MIDI sequencer.

Additional dual panner modules can be added in the field to the Panner Audio Rack for up to 12 panner inputs (six panner modules). Additional audio racks also may be added to the system, and multiple panner controllers can be connected to each panning rack via the PicMix Control Network for maximum flexibility when using a multiposition mixing console. A basic PicMix Panner System starts at $3,795, including two panner modules.

RSP CIRCLE SURROUND 5.2.5 PANNER/CONTROLLER

The Circle Surround™ 5.2.5 Panner/Controller from RSP Technologies (Rochester Hills, Mich.) is a straightforward system that adds L-C-R-RS-LS joystick panning to any console. The system consists of a compact console-top panner with four joysticks, each with a mute button and LED in/out status indicator, connected via a 15-pin D-sub cable (no limit on length) to a single-rackspace controller housing all the audio I/O connections and summing circuitry. The latter uses high-end Analog Devices OP275 op amps and 2018T VCAs for low-noise/low distortion performance.

Each of the four joysticks has its own input on a common D-sub connector, and each joystick has L-C-R-RS-LS outputs. Each of these twenty outputs are available on a D-sub. The L-C-R-RS-LS individual joystick outputs are also summed internally and are available on another D-sub connector. All 25-pin D-subs use the standard Tascam DA-88 audio wiring format for ease of installation. Several Panner/Controllers can be daisy chained together to provide more panners for a project.

The 5.2.5 Panner/Controller is designed specifically to be used with RSP's line Circle Surround matrix encoder/decoder products, and includes a third D-sub connector that feeds the summed outputs to the 5.2.5 Encoder. However, with the Controller's multiple +4dBu balanced outputs, the unit is equally suitable in stand-alone (non-matrixed) applications requiring discrete output channels, such as premixing stems or for concert sound/live theater use. Additionally, several Panner/Controllers can be daisy-chained to provide more panning flexibility. The system retails for $2,599.

SASCOM OMNISOUND OPS-1 AND ADGIL MONITOR DIRECTOR

First used by NYC's Sound One for the production of *Men in Black*, the OmniSound OPS-1 from Sascom Marketing (Oakville, Ontario) brings joystick surround panning (in any format from stereo through 7.1) with frame-accurate SMPTE automation of panning moves to any console having eight or more buses.

This expandable system offers up to 16 inputs and up to eight outputs. The controller has a square 2.5-inch backlit LCD screen, joystick and 100mm faders for Level/Vertical, Intelvergence™ (Intelligent Divergence) and Stereo Image Width control. One OPS-1 Remote Control can address up to 16 OPS-1 daisy chained processors, each capable of storing 24,000 positions and a MIDI feed-through feature

—CONTINUED ON PAGE 233

Meet the family.

The award winning professional technology that set the benchmark in studios around the world is now available at every price point, meeting every users needs. Each version offers Digital Audio and real-time DSP and the same professional character – not just another pretty face.

Emagic Inc.
Tel. +530.477 1051
Fax +530.477 1052

Emagic Internet
http://www.emagic.de

emagic
Technology with Soul.

METRIC HALO LABORATORIES

1997 EQ AES Blue Ribbons Award Winner

The Art of Now

digital instruments so fast they look analog

SPECTRAFOO™ TDM PRO TOOLS

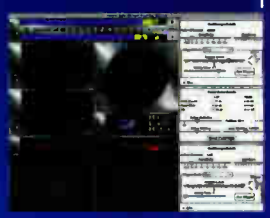
VISUAL AUDIO MONITORING SYSTEM

The wait is over... SpectraFooTDM is available now!

The SpectraFooTDM plug-in environment for ProTools and ProTools24 systems features unparalleled audio analysis and metering tools that are completely synchronized with the program material being monitored. SpectraFooTDM runs concurrently with all other plug-ins in order to provide instant feedback on any channel or an entire mix. You can even monitor the effect of DSP processes as you are changing parameters! The SpectraFooTDM system is only $500. Other configurations are available from $99.95. For more information or to order call +1 (888) 638-4527 or check our website at www.mhlabs.com.

At only 500 bucks, you can even afford one for each eye!

These standalone products are also available from Metric Halo Labs:



MLM-100

Real Time Rack

SpectraFoo Standalone

Key Features

10 types of track assignable audio analysis instruments

- Lissajous Phase Scopes
  - Oscilloscope and Vectorscope modes
- L-R Stereo power balance meters
- Envelope history meters
- Digital level history meters
- Band limited history meters
- Full-featured audio spectrum analyzers
- Full-featured audio frequency oscilloscopes
  - Adjustable, calibrated graticule
  - Adjustable timebase/sensitivity
  - Adjustable level and slope triggering
  - Clip/Polarity check triggering
- Spectrogram spectral history meters
- PhaseTorch™† frequency-sensitive phase meters
- Sample accurate digital level meters
  - Peak, RMS, and average
  - Clipped sample count readouts
  - High Resolution (.0 dB) numerical readouts

Persistent instrument windows

- Runs concurrently with other plug-ins to provide instant feedback on any channel or an entire mix.

Uses only one DSP for up to 22 channels of analysis

All the power of SpectraFoo – seamlessly integrated into the ProTools production environment.

"Invaluable." — Steve La Cerra, Pro Sound News

"SpectraFoo is the future & science of computer animated audio metering."
— Frank Serafine, Serafine Studios

"...the depth of this program is almost unheard of in a first release, and I expect further innovative developments from these folks in short order."
— Jim Jordan, Audio Media US

Dealer Inquiries Invited

Metric Halo Labs, Inc. • 841 South Road • Suite H • Poughkeepsie, NY 12601

tel (914) 298-0451 • fax (914) 298-4089 • http://www.mhlabs.com • email: in-foo@metric-halo.com

CIRCLE #042 ON PRODUCT INFO CARD

JEREMY KOCH

SOUND ONE PRESIDENT, MIDTOWN MAVEN

Established in 1969, Sound One is considered by many of its regular clients to be the East Coast's pre-eminent film post house. In an average year, this New York facility handles sound editorial and/or dubbing for 100-plus motion pictures, in addition to countless documentaries and commercials. Recent projects have included *Deconstructing Harry*, *Flirting With Disaster*, *Get Shorty*, *Kundun*, *Men in Black*, *Sense & Sensibility*, *Sling Blade*, *The Boxer* and *Ulee's Gold*. The facility was also involved with several innovative productions screened at Sundance 1998: Paramount's *The Real Blonde*, directed by Tom DiCillo and starring Matthew Modine and Daryl Hannah; *Affliction*, directed by Paul Schrader, with Nick Nolte, James Coburn, Sissy Spacek and Willem Dafoe; *The Spanish Prisoner*, directed by David Mamet, with Ben Gazzara, Campbell Scott and Steve Martin; and *Safe Men*, directed by John Hamburg, with Sam Rockwell and Harvey Fierstein. Not a bad lineup.

"On any given day, upward of 400 people might be actively involved here in film post-production," reports Sound One president Jeremy Koch. "It has been said that if a bomb were to be dropped on Sound One's annual Christmas party, the New York film industry would be wiped out, and the industry as a whole severely damaged!"

In addition to courting established directors and film producers, Sound One actively seeks out the newcomer. "First-time filmmakers and film students are afforded the opportunity to work in a premier post-production facility in New York," explains Koch. "Although Sound One is first and foremost a service organization, it has continually nurtured its community, providing encouragement and education. Despite our size and complexity, we strive to maintain the feeling of a small, cottage industry."

Sound One occupies six floors of the historic Brill Building in midtown Manhattan. Its move toward a tapeless, sprocketless environment has been well-documented and has been driven largely by Koch and his crack engineering team. But technology is just one aspect of running a high-end facility. Sound One has assembled a unique and talented staff that adds a bit of New York personality on top of the obvious talent.

Unlike post facilities here on the West Coast, which are normally housed in single-story buildings on a large lot, Sound One occupies several floors of the Brill Building. How do you manage all that traffic in a more congested environment?

In certain ways, that closeness and intimacy work for us. First, we save a lot of time. I believe that we're the largest vertically integrated facility of its kind in the country. We have 85 editing rooms and dubbing studios; the way the facility is laid out means that people move very quickly through from the edit rooms to the transfer rooms to the mixing rooms to the ADR rooms. It seems to work very well.

Film producers are happy because if you have to send out an assistant, you could easily lose an hour. But here, they can reach their location within a matter of minutes using the stairs; things happen very quickly.

What is the mixture of sessions that come through Sound One? Is it primarily film soundtracks? TV commercials?

The majority is feature films and documentaries. We occasionally do a TV series, but there aren't many that are posted in New York. And when they are, the budgets are so low that oftentimes we just don't have the space to commit for it.

BY MEL LAMBERT

The last two series we did were *New York News* and *Central Park West*. And we occasionally do high-end commercials where they want the very best.

We also supply facilities for picture editing here on-site; we lease rooms to production companies that either rent our equipment or bring in their own. A picture editor works very tightly with our sound crews, so they tend to be operating contiguously in the same space.

How do you market Sound One's facilities to the film and TV community?

That is a tough question. Our strategy here is that if you built a facility to be the best, and give clients the best service with the best talent...they will come. That is our marketing strategy. We have such a minimal advertising and sales budget, and we market by word of mouth.

What does Sound One offer over other New York facilities?

First, it's the talent of our craftspeople, which creates a good vibe. Over the years, we've thrown everything back in to make this place so very special. The Brill Building has an extraordinary history. I can't imagine anyone going anywhere else, except if they can't get in here because we're too overloaded to meet their schedules. Or because the director has a very tight budget, and we can't do it for the price. In the past, we've tried to accommodate everybody, including student mixes, because we believe what goes around comes around; they may be the next Joel and Ethan Cohen, the next Spike Lee or the next Martin Scorsese.

What do you think Sound One offers over West Coast facilities?

I don't think we compete with West Coast facilities. We service a very different culture: people that work here and prefer to post here on the East Coast.

But the normal philosophy is that "a production follows the negative home." A lot of film companies are based on the West Coast.

I don't know if that's true. It does happen with directors and producers that don't have sufficient clout when they cut their deal. But with filmmakers who live in and around New York City, they'll go to Katmandu to shoot a film, but when it comes time for post-production, they want to come home. There's an awful lot of talent here, including directors, producers and writers. I read in an *Esquire* article that something like 65 percent of all writers and [film] directors live in and around New York, or declare it as their home.

What was the thinking behind the move to all-digital editorial during the early to mid-'90s, and the investment in

BLOCKBUSTER FILMS MIXED AT SOUND ONE

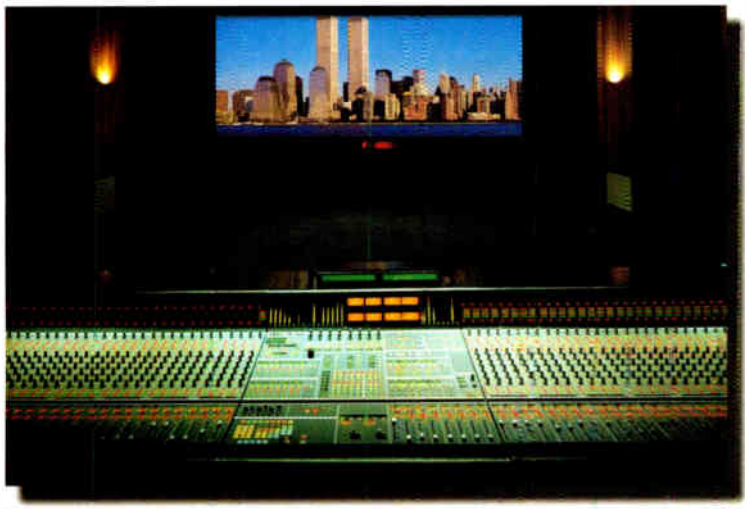
The mix staff at Sound One has assembled an impressive collective resume. Here are some of the highlights.

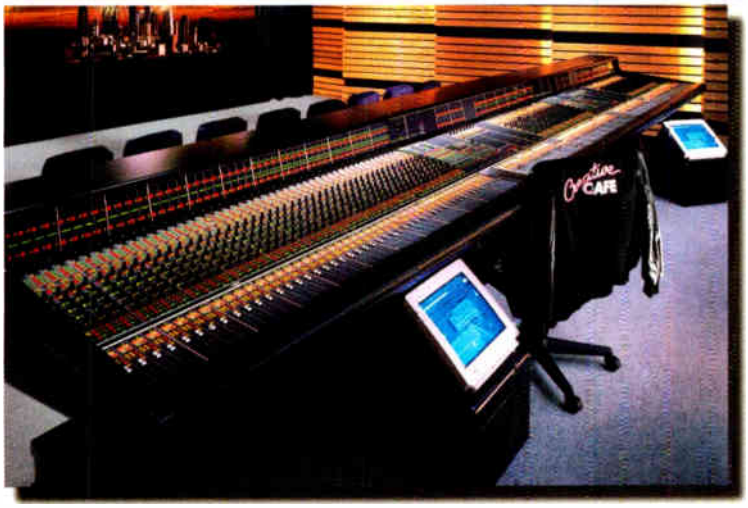
Lee Dichter *Men in Black, Get Shorty* and *For Love or Money* with director Barry Sonnenfeld. *The Boxer* with director Jim Sheridan. *Sophie's Choice* with director Alan Pakula. *Deconstructing Harry, Mighty Aphrodite, Bullets Over Broadway, Husbands & Wives, Crimes & Misdemeanors, Radio Days* and *Hannah & Her Sisters* with director Woody Allen.

Tom Fleischman *Last Temptation of Christ, After Hours, Color of Money, Cape Fear, Good Fellas, Casino* and *Kundun* with director Martin Scorsese. *Something Wild, Married to the Mob, Swimming to Cambodia, Silence of the Lambs* and *Philadelphia* with director Jonathan Demme. *Kiss of Death* and *Desperate Measures* with director Barbet Schroeder. *Interview With the Vampire* and *Michael Collins* with director Neil Jordan.

Dominick Tavella *Ulee's Gold* with director Victor Nuñez. *The Real Blonde* with director Tom DiCillo. *Fast Cheap and Out of Control* with director Errol Morris. *Affliction* and *Touch* with director Paul Schrader.

Other staff mixers include **Michael Barry** (*Fargo, Hudsucker Proxy* and *Lone Star*); **Reilly Steele** (*Copland, Ice Storm, She's the One, The Brothers McMullen* and *If Lucy Fell*); **Peter Waggoner** (*White Man's Burden, Fathers and Sons* and *Roger and Me*); **David Novack** (*Velvet Goldmine, I Shot Andy Warhol* and *Money Train*); **Jonathan Porath** (*Grace of My Heart, Invasion of Privacy, Casino* and *Pret-a-Porter*); **Robert Fernandez** (*Manny & Lo, Finding North* and *Thicker Than Water*); and **Mel Zelniker** (*Passion Fish* and *Raising Arizona*). ■





De Lane Lea, London Creative Café, Hollywood Twickenham Studios, UK Sony Pictures, Hollywood

1

in Film.

in the U.K.

in Europe.

in Australia.

in Hollywood.

in the world.

period.

Representative Film Console Users:

ARRI, *Munich* • ARRI Contrast, *Berlin*
ATLAB, *Melbourne* • Audis de Joinville, *Paris*
Australian Film, TV and Radio School, *New South Wales*
Bavaria Film, *Munich* • Betatechnic, *Munich*
BR Film, *Mumbai* • Cinepost AB, *Stockholm*
Creative Café, *Hollywood* • dB Post, *London*
DeLane Lea, *London* • EFX Systems, *Hollywood*• FEMIS, *Paris*
FR3, *Lyon* • FFS, *Munich* • Finnish Film Foundation, *Helsinki*
FeltWave, *Copenhagen* • Four Media Company (4MC), *Hollywood*
Goldcrest Post Production, *London* • Granada TV, *Manchester*
Lyrick Studios, *Dallas* • Magmasters, *London*
National Film & Television School, *London*
Post Film and Video, *Sydney* • Ruhr Sound, *Dortmund*
Shepperton Studios, *London* • Sony Pictures, *Hollywood*
SounDelux Vine Street Studios, *Hollywood* • Soundfirm, *Melbourne*
Soundfirm, *Sydney* • South Australian Film Corporation, *Adelaide*
Studio Babelsberg, *Berlin* • Taran Studios, *Cardiff*
Twentieth Century FOX, *Hollywood* • Twickenham Studios, *London*
Universal Studios, *Hollywood*
(listed in alphabetical order)

Headquarters
7104 Crossroad Blvd, Suite 118
Brentwood, TN 37027
Phone: 615-370-9001
FAX: 615-370-4906

European Operations
4 Cooper House, Ravens Lane
Berkhamsted, Herts HP4 2DX, UK
+44 (0)1442-875-900

Email: sales@glw.com
Web Site: www.glw.com

CIRCLE #041 ON PRODUCT INFO CARD

WE AVOIDED COMPROMISE SO YOU WOULDN'T HAVE TO.

VX2

Introducing the VX2, a dual valve, dual transformer, dual diaphragm condenser microphone which delivers phenomenal audio performance. Be enveloped by the rich transparent wide frequency response with a computer optimized design that results in an extremely low noise floor. Experience the full bodied harmonic content which provides a silky audio texture and detail with an absolutely huge image . . . as expansive as space itself. Take advantage of the optional 24 bit, 96kHz digital output (120 dB dynamic range) and expand your performance with our exclusive Optema Series™ with interchangeable capsules tailored to your diverse applications. Compare the VX2 to any other tube microphone, at any price, and any vintage. We are sure you will agree that CAD has once again reduced the cost of excellence, without sacrificing quality, innovation or performance.

- Dual Valve Design (separate tube head amp & tube output circuits)
- Dual custom wound humbucking output transformers
- Exclusive Optema Series™ capsule with 1.25" diameter, proprietary polymer 3 micron thick gold sputtered diaphragms
- Multi-pattern (cardioid, figure 8, and omnidirectional)
- Detachable capsule/ screen assembly for alternative capsules
- 8 and 16 dB non-capacitive pad
- 80 Hz high pass filter
- Includes ZM-2 shock mount
- Equivalent noise level: 13dB Equivalent SPL, A weighted, cardioid

CAD

PROFESSIONAL MICROPHONES

CAD • 341 Harbor Street • Conneaut, OH 44030 • Audio (440) 593-1111 • Fax (440) 593-5395

CIRCLE #045 ON PRODUCT INFO CARD

Sonic Solutions workstations?
We had reached a certain level of growth, and we believed that there was a revolution coming. The question was: When is it going to come? How many corpses were going to be left on the battlefield in the process of getting there? We knew we were at a point where we needed to grow, yet to maintain our market share, we decided to look at all of the options. After much discussion, argument and research, we decided that we would build toward an all-digital environment.

We saw it as two separate cans of worms: one, inside the studio; the other in the back room. We decided to develop the digital recording and playback sector first, with what we refer to as the "ER"—The Equipment Room. In 1993, we looked at what was coming down the pike—there were so many options—and decided to build it as flexibly as possible. In that way, whatever came along would be compatible with the infrastructure we built.

You were looking for file-transfer compatibility at both the media level and at the networking level?
Right. To transfer material, we set up a very modular digital complex, the theory being that all of the equipment would be in the back room, with only the control surface in the studio. And we wanted it to be connected to our sound effects library. We selected Sonic Solutions workstations, which are modular and flexible.

Two members of our technical staff—Jonathan Porath and John Purcell—spent a lot of time working with Sonic, which was willing to design [custom systems] for us. Sonic had been successful in the music editing business and agreed to work with John Purcell to develop a system that would work for film sound editing. We have what we believe to be the largest Sonic network in the film post-production world.

We put a Sonic in each dubbing studio and two edit facilities that were all a part of the network. Now, in the middle of a mix, an editor could jump into an edit suite if they needed another effect, pull it off the server, lock it to picture and then fly it into the mix—without leaving the room. We were also able to set up lines so that clients could work directly out of their edit room into the mix. We did that on a big scale with *Men in Black*.

You've just installed some 60 of these new Akai DD-8 Digital Dubbers. What made you go with Akai?
We were already using the DD-1500 workstations. That was a separate collaboration; there was nothing on the market that could replace the original [Sony PCM-3324/48] DASH-format machine we went with in '93. Akai was ready, willing and ultimately able to jump in. They worked with our technical director, Jonathan Porath, our research & development engineer, Avi Laniada, as well as our project and development chief, Allen Hale, for about 13 to 14 months to develop operating software to make this digital dubber work in full synchronization. We went with it both for playback and recording [on the stages].

You pre-load to the dubbers and use them like you would mag elements?
That's exactly what we're doing.

And then predub to multitrack DD-8, and record your 6/8-track final stems?


PHOTO: STEVE ELMORE

Sound One Edit 1

PHOTO: FAULE COBURN

Behind the scenes at Sound One, from left to right: Jonathan Porath, chief engineer; Avi Laniada, systems engineer; Tom Fleischman, mixer; Elisha Birnbaum, chairman; Lee Dichter, mixer; Jeremy Koch, president; Allen Hale, technical manager.

Correct. There's no generational loss. After much suffering, it is working very well; we've already done dozens of films on [the DD-8]. You can use it like a digital dubber and move tracks [against timecode]; the mixer has much more control.

Several other New York facilities have gone with DD-8.

The same thing happened when we went with the Sonic [Solutions workstations]. New York, being this divine niche society, tends to want to work in sync. So, when we went with the Sonics, New York went Sonic. And now New York is going Akai because it doesn't do any good to fight each other.

Sound editors work together as a close community. I guess people need to provide you with material in a format you can handle easily?

That's what's happening. Sound files are coming in on MOs and hard drives.

The DD-8s are on an Ether network so that they can be controlled from any mix station?

Yes. That gives us great flexibility and speed. The mixer has complete visual control. At any time, he can address any of his playback or record machines and make fast changes. The whole chain becomes one integrated system. We're going to expand that as we go.

What drives the compatibility envelope? Did you involve the sound editors and directors in the decision to go with the Sonic and the Akai?

We had discussions mostly with editors, but we went at it somewhat alone. Most people were still working on older technologies. Incorporation of the Sonics was quite a labor-intensive task for us as we started training film people outside the company. By the time the systems were available in the marketplace, the community was already computer-literate and very much in favor of doing it. But the decision was one of: "How do you survive in this business?" You make a wrong choice and you may not be able to get a second chance for X number of years. You've got to pay it back.

Do you also record ADR and Foley direct to hard drive?

Yes. We've been doing Foley for quite some time now, and ADR is now going right to the Akai DD-1500s.

You have four re-recording stages equipped with Neve VR consoles, Flying Faders automation and your proprietary monitoring matrix. What was behind the choice of those boards? They're not really film boards are they?

They are now! They were modified by our staff. We put in the VSP [film-monitoring] panels and added special motion controls. They sound wonderful.

But remember that during the past five or six years, since we made the decision to move into the digital domain, we have been building the infrastructure to install and test these [workstations and dubbers]. We built the digital equipment room, and on the floor below a room full of analog technology. Then we connected that through a routing system so that we could deploy all our assets—digital or analog—seamlessly in any combination to any of the four studios. If our clients wanted to gradually introduce digital into the particular structure of their film post-production, they could.

Is each of your re-recording stages run as a two- or three-person operation?

All of our stages basically run with one person handling everything. We've always done that, and it's worked for us. We actually do most of our projects—especially the larger ones—in less studio hours than Hollywood.

You also have two large stages fitted with Neve 51/VR Series consoles. They specialize in large-scale film re-recording, I assume.

Yes, they are the two biggest studios.

Your Recording Career is in Your Hands Now.

Burn CDs Right From Your VS-880

From the first moment of inspiration to the final mastered CD, the VS-880 now gives you complete control of the recording process. With the new VS-880 software*, just connect the new portable CD-R drive and start burning. Your music deserves it.

VS-CDR-S2 package includes:

- Multi-session 2x/6x CD-R drive
- New VS-880 software on Zip™
- SCSI cable and 2 blank media
- Also works as a CD-ROM/Photo CD player with Mac or PC
- CD recording system also available with VS-880 as a complete package

New Third Party Support

Now you can connect your VS-880 with the rest of the digital audio world with new third party software support from Cakewalk®, AirWorks® and others. Transfer your VS-880 audio files over to your PC or MAC and seamlessly integrate them with popular MIDI/audio programs. Plus, with AirWorks VSLink™ software, your files can be OMF compatible, giving the audio/video industry easy access to the world's best selling Digital Studio Workstation.

The VS-880. The possibilities are officially endless.

Roland®

VS-880 V-EXPANDED

Digital Studio Workstation

Roland Corporation U.S., 7200 Dominion Circle, Los Angeles, CA 90040 (213) 685-5141
Roland Canada Music Ltd., 5480 Parkwood Way, Richmond, B.C. V6V 2M4 (604) 270-6626
http://www.rolandus.com

* CD recording system can only be used if VS-880-S1 V-Xpanded software has previously been installed.

CIRCLE #046 ON PRODUCT INFO CARD

"L" is Lee Dichter's room, and "D" is Tom Fleishman's room. These are the stages where they mixed *Men in Black*, *Deconstructing Harry*, and so on. *Kundun* was just competed in "D." *The Boxer* was dubbed in "L."

What about the future of digital consoles?

Our desire at the moment is to finish the equipment room and the entire recording process. From the way we work in New York, we don't feel that the all-digital console is ready for us. Nor are we ready for it. From the point of view of the control surfaces, some of the digital consoles are still very clumsy. And others—where the control surface seems less cumbersome and more user-friendly—are not yet fully digital. Our feeling is that we should wait until we feel they're ready.

We're working with several firms—Otari, SSL, Sony, Harrison, Studer and the others—but we don't feel the time is yet right. It's getting close; another generation or so will bring some of them in line with what we're doing. The feeling here is that we may be a year-and-a-half away from selecting a console; then, of course, comes the learning curve. Our mixers very often move from one studio to another, so they can work quickly.

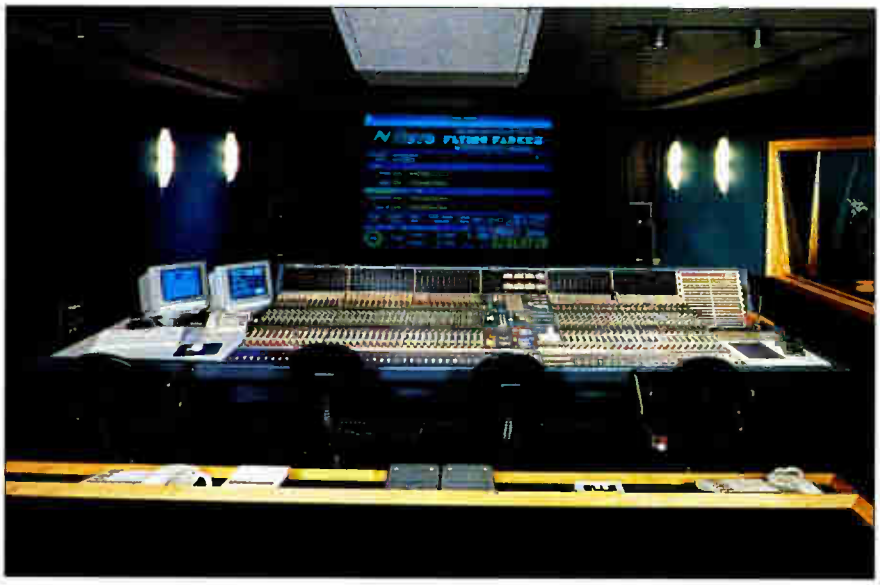


PHOTO: STEVE ELMORE

Sound One Studio B

You have some 85 sound editorial rooms, plus several dozen rooms that can be configured for sound and picture editing?

Right. Everything now follows a modular approach, so that if a client needs five rooms, in most cases we can set them up so that editors can move between all of these rooms without going out into the hallway. We rent them whatever they need—Avid and Pro Tools, for example—or they bring their own equipment.

—CONTINUED ON PAGE 224

FIRST WE MADE CD RECORDERS AFFORDABLE

NOW WE'RE GIVING AWAY THE DISCS

No other pro audio CD recorder sounds better. No other pro audio CD recorder is easier to use. And no other pro audio CD recorder is backed by HHB's award winning technical support.*

No wonder the HHB CDR800 is so hot.

And it's about to get even hotter. Buy an HHB CDR800 CD Recorder and you'll now receive a pack of 10 HHB CDR74 Gold blank discs, absolutely free. That's more than 12 hours free recording on the most advanced Phthalocyanine, audio - optimised CD-R discs that money can buy.

There's never been a better time to record your work on CD-R. Call HHB about the CDR800 today.

* Winners of the Professional Recording Association Award for Technical Achievement, 1997.

ALSO FROM HHB · COST EFFECTIVE, HIGH PERFORMANCE DIGITAL RECORDING MEDIA

DAT Tape

CD-R

MiniDisc

MiniDisc Data

Magneto - Optical

ADAT

DTRS

HHB Communications USA · 626 Santa Monica Boulevard, Suite 110, Santa Monica, CA 90401, USA · Tel: 310 319 1111 · Fax: 310 319 1311 · E-Mail: sales@hhbusa.com

HHB Communications Canada Ltd · 260 King Street East, Toronto, Ontario M5A 4L5, Canada · Tel: 416 867 9000 · Fax: 416 867 1080 · E-Mail: hhbcan@istar.ca

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

Visit HHB on line at: http://www.hhb.co.uk

HHB

CIRCLE #048 ON PRODUCT INFO CARD

Affordable Digital

Product Hits From NAMM '98

By George Petersen and Sarah Jones

Neither the howling gales of El Niño nor a change in venue from its traditional Anaheim digs to the *tres moderne* Los Angeles Convention Center could keep winter NAMM from delivering the latest, hippest audio and music technology. This four-day, late-January event had its share of snags. The weather was, at best, uncooperative. The convention center's lack of nearby hotels transformed NAMM into a commuter convention—a far cry from Anaheim's "walk across the street for an after-show drink" atmosphere. And face it: Downtown L.A. (particularly the area around LACC) ain't exactly Disneyland. Fortunately, once inside this palace of products, one could easily forget the weather and bad neighborhood and check out some intriguing new technology.

GO DIGITAL!

If there was a theme to this year's NAMM, it was "affordable digital," with dozens of products designed to do the job better and faster, with higher resolution and smaller price tags. Anyone wondering when they should "go digital" should circle 1998 as their year to make the move.

By far the hottest debut at the show was Yamaha's (Buena Park, Calif.) entry into the DAW market with its DSP Factory family of components for multitrack recording, editing and mixing for the Windows environment. Featured in last month's *Mix*, and priced at $999, the host CPU-independent DS2416 PCI card offers features of the 02R, such as 24-channel, 32-bit mixing with ten bus outputs and six aux sends. It also provides 104 bands of parametric EQ, 26 dynamics processors and two effects processors (comparable to the REV500), in addition to 16-track recording capability. MDM interfaces and a Mac driver are in the works. Control software is being developed or integrated by companies such as SEK'D, Steinberg, Sonic Foundry and Cakewalk; DSP Factory shipments begin this spring.

Digital consoles? Bring 'em on! Panasonic (Cypress, Calif.) made the first public showing of its under-$5,000 32x8x2 WR-DA7 (previewed in the November 1997 *Mix*). Not to be outdone, Spirit by Soundcraft (Rocklin, Calif.) unveiled its 32x8x2 Digital 328, which features two onboard Lexicon effects units, dynamics, motorized faders, 24-bit ADCs and DACs, two TDIF and two ADAT LightPipe interfaces (standard), and recall of all console settings—all at $4,995. The 328 ships next month, and options include a Pro Tools interface. Meanwhile, Mackie (Woodinville, Wash.) demoed its $9,999 Digital 8-Bus console, which starts shipping this month, as does Tascam's (Montebello, Calif.) "under-$10,000" TM-D8000 digital mixer.

Alesis (Santa Monica, Calif.) showed the next chapter in its third-generation ADATs, bringing the 20-bit ADAT Type II format to all current ADAT recorders. Essentially a 20-bit XT, the ADAT XT20 ($2,999) is priced $500 less than the previous 16-bit XT. And Alesis will offer a $799 upgrade kit for owners of existing XTs. Bringing MDM affordability to new levels, the LX20 ($2,249) is a no-frills 20-

Spirit by Soundcraft 328 digital console

bit ADAT, offering only unbalanced I/O and removing some of the XT20's advanced features, such as digital editing via multimachine offset, premium converters, etc. Best of all, these are shipping now. The most interesting ADAT product at the show was ADAT PCR, a $499 PCI card with eight tracks of LightPipe I/O (switchable to 2-channel S/PDIF optical I/O) and ADAT 9-pin sync I/O for sample-accurate lock to any ADAT system, allowing computer-based tracks to function as master or slave to any ADAT system.

Digidesign (Palo Alto, Calif.) unveiled the ADAT Bridge I/O 16-channel ADAT interface for Pro Tools systems. The rack-mount unit offers 16 discrete channels of ADAT optical I/O, separate AES/EBU and S/PDIF ports for mastering to DAT, 20-bit A/D converters for monitoring and support for third-party ADAT sync devices, including the BRC. Multiple Bridges ($1,195 each) can be combined for up to 72 channels of I/O.

Korg's (Melville, N.Y.) D8 is a disk-based, 8-track recording, editing and mixing system in a compact tabletop unit. The D8 combines an automated 12-channel, 4-bus digital mixer with 2-track simultaneous recording and 8-track simultaneous playback of uncompressed 16-bit, 44.1kHz audio and 24-bit internal processing, stored on an internal 1.4GB hard drive with a SCSI port for extra storage needs. Other features include track scrubbing, MIDI sync, 50 onboard digital effects and S/PDIF I/O. Retail: $1,250.

It had to happen sooner or later: Yamaha finally created an 8-track MiniDisc ministudio. The $1,399 MD8 features a 12-channel mixer (20 inputs on remix), 3-band EQ, two mic inputs with phantom power, two aux sends for external effects and 18 minutes of recording time.

The Roland (Los Angeles) VS-1680 is a 16-track version of the VS-880 tabletop recorder/workstation, retailing at about $3,500. Similar in configuration to the VS-880, the VS-1680 offers a bigger, more intuitive LCD interface and eight simultaneous recording and 16 simultaneous playback tracks (16 virtual tracks for each track) and a 26-channel automated digital mixer. Internal processing is 24-bit, and A/D converters are 20-bit. Two optional effects boards add four stereo multi-effects or up to eight channels of independent effects.

Yamaha MD8 8-track MiniDisc recorder

The biggest bargain at NAMM had to be the Fostex (Norwalk, Calif.) FD-4 Digital Multitracker, a 4-track disk recorder/mixer with MIDI sync, analog and S/PDIF I/O, two XLR mic inputs and jog/shuttle wheel. Price is just $599—less disk drive. Just connect any SCSI device or add an internal 2.5-inch E-IDE hard disk and you're set to track.

E-mu Systems (Scotts Valley, Calif.) announced the Audio Production Studio, offering sampling, MIDI, synthesis and basic hard disk recording for about $600. The system consists of a Windows 95 PCI card, an Audio Access Bay front panel providing ¼-inch analog and stereo S/PDIF I/Os, and a suite of E-mu and third-party software. Features include SoundFont creation capability, plus 64 hardware voices supporting SoundFont sounds and/or streaming audio, and a patchable effects architecture. Another cool intro from E-mu: ModuleMania, a five-CD-ROM series of SoundFont banks developed from the Proteus 1, 2, 3, Vintage Keys and Planet Phatt modules. The set is $99. Individual modules are $29, and all banks support the new Audio Production Studio.

Alesis XT20 20-bit ADAT

SOFTWARE AND MORE

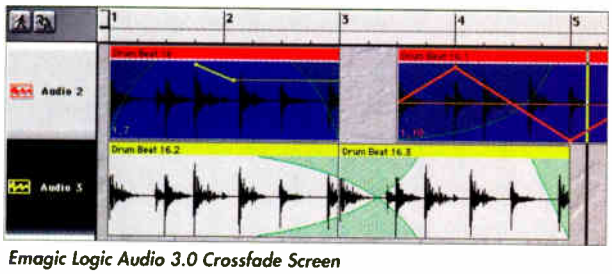
One of our favorite NAMM debuts was ACID from Sonic Foundry (Madison, Wis.). A multitrack loop sequencer for Windows 95 and Windows NT, ACID specializes in loop arranging, allowing real-time pitch and tempo adjustments on multiple loops simultaneously, with fast, easy, drag-and-drop editing. Unlimited loop tracks are available, depending on system RAM; ACID comes with hundreds of loops and outputs .WAV files, and it's compatible with various editing/CD recording packages, plus DirectX audio plug-ins.

Now there's a configuration of Logic Audio to meet anyone's needs (and budget!). Emagic (Grass Valley, Calif.) offers Logic in four new versions: The entry-level MicroLogic AV features 16 audio tracks with real-time effects and a sample editor. Logic Audio Silver offers up to 24 audio tracks with 3-band EQ. Logic Audio Gold replaces the previous Logic Audio package, and Logic Audio Platinum supports 24-bit audio and offers up to 96 audio tracks, plus unlimited parallel operation with various hardware platforms. (The Platinum package is also bundled with PEAK SE and Cool Edit Pro LE.) High-end versions of Logic now feature nondestructive, real-time crossfade capability, and all Logic systems feature Emagic's new Adaptive Mixer and new graphical plug-in windows.

Opcode (Palo Alto, Calif.) released a feature-packed Version 4.0 upgrade of Studio Vision Pro. Included are full support for Pro Tools 24; new comprehensive crossfade functionality; vertical resizing capability in Strip Chart views; a cool new Groove Edit window that features a time-based grid for fast, drum-machine-style sequencing of events; nondestructive

groove quantizing; nested loops; and a "smart overdub" feature for updating fader moves.

Every trade show brings strong entries in the ever-growing audio card market. Priced at $1,595, OnStage from **Applied Magic** (San Diego, Calif.) offers 20-bit editing, with four balanced XLR analog I/Os and AES/EBU digital I/O. SMPTE LTC and MIDI are also supported. **Glyph Technologies** (Ithaca, N.Y.) showed the Dig-o-Matic ($399) 2-channel PCI card, featuring S/PDIF I/O and driver support for most Mac-based editing software. French company **Guillemot International** (U.S. offices in San Francisco) introduced the Maxi Home Studio Pro 64 card, featuring 16-track capability, 64-voice wavetable synthesis (upgradable to 96-voice polyphony and 32 multitimbral channels), 16 real-time multi-effects, and S/DIF and two stereo analog I/Os. The card is bundled with sequencing and sound file management applications. Retail is $199. And the Aark 20/20 ($995) from **Aardvark** (Ann Arbor, Mich.) is a 24-bit capable PCI I/O card with eight channels of 20-bit ADCs and DACs and stereo S/PDIF I/O in a breakout box. Features include ten simultaneous record/play channels, word clock I/O and video sync input.



Emagic Logic Audio 3.0 Crossfade Screen

The world's biggest sampler has finally gone software: **Nemesys**' (distributed by East West, Los Angeles) Gigasampler plays back samples directly from your PC's hard disk, providing up to 4 gigabytes (!) of sample capacity; as a result, there's no looping, volume scaling or pitch shifting. The system reads Gigasampler, .WAV and Akai sample libraries; its sound collection includes a 1GB sampled piano. Price: $795.

Nemesys Gigasampler

Seer Systems (Los Altos, Calif.) enters the Internet market with SeerMusic, a streaming music delivery package offering customizable performance dependent on the user's system/Internet configuration. Also, listeners have the ability to remix in real time as the music downloads.

MICS

If the CAD (Conneaut, Ohio) VX2 tube mic sounds half as cool as it looks, it's a winner. From its 1.25-inch gold-sputtered capsule and dual-tube design to the optional 24-bit/96kHz converter built into the power supply and an astonishingly low 13dBa self-noise, this should be on anyone's "must hear" list.

Intended for stage or studio use, the 30 Series from Audio-Technica (Stow, Ohio) has three condenser mics featuring extended frequency response (30 to 20k Hz) and up to 148dB SPL handling. Priced at $299 each, the AT3527 (omni) and AT3528 (cardioid) are probe-style mics for near- or far-field instrument miking. The large-format AT3525 cardioid ($399 with shockmount) is designed for vocal, electric guitar, drum overhead and acoustic piano miking.

COOL STUFF

Anyone with lots of S/PDIF gear will appreciate the **Fostex** DP-8, a single-rackspace patchbay for coaxial and optical digital signals. It not only handles signal routing but adds coaxial-to-optical conversion. Price is only $359.

RemoteMX™ from SoundMX (Palo Alto, Calif.) is a simple system that allows musicians to create their own monitor/cue mixes with individual EQ in the studio or onstage. A rackmount mixer unit with eight insert jack inputs connects to any console and creates two independent monitor mixes sent to compact remote units (up to 1,000 feet away), using standard XLR cables. Retail is targeted at $1,299.


Audio-Technica 30 Series microphones

Program Solutions Group (San Jose, Calif.) showed the Little White Box, a stand-alone CD duplicator that copies discs at the push of a button. The unit costs about $1,800, records at 4x speed (copies four CDs per hour) and includes a stereo line-in. PSG also offers duplication towers for copying up to 28 CDs per hour; those start at $4,100. Speaking of CD-R, Marantz/Superscope (Aurora, Ill.) announced the CDR630, a rackmount CD recorder with analog and S/PDIF I/O. A built-in sample rate converter handles any input from 32 to 48 kHz, and it's as easy to use as a home cassette deck. Retail: a rock-bottom $1,200.

An audio show isn't complete without some retro stuff: Shipping this summer, **Peavey**'s (Meridian, Miss.) Paradox ($849) is a monophonic analog synth module in a single-rackspace chassis, with real VCAs and filters and a tube output stage, but we dug the optional $449 controller with LOTS of knobs and both antenna—Leo Theremin, anyone?—and ribbon strip (both assignable to any parameter) controllers for some amazing real-time performance possibilities. Meanwhile, **Allen & Heath** (Sandy, Utah) GS3000 analog 8-bus recording mixers include a tube master output stage: A 24x8x2 is $5,999; a 32x8x2 version is $6,999. In other tube-land news, **Fender** (Scottsdale, Ariz.) inked a deal to install high-performance **Groove Tubes** as standard issue in all its guitar amps.

There were plenty of other hot debuts at NAMM; Mark Frink will look at new sound reinforcement products next month, and we'll be covering the rest in our regular new products sections in the months to come. In the meantime, NAMM returns to Nashville this July 10-12. See you there. ■

24 Bit / 96 kHz

We are there !

Samplitude 24/96

Where are you ?

24/96 ADDA Converter

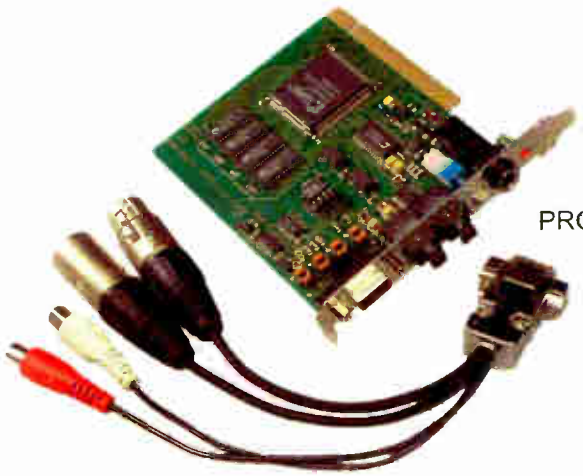
The complete solution for
high end audio editing
in 24 Bit / 96 kHz.

Samplitude 24/96

24/96 ADDA Converter

PRODIF 96

SEE US AT NAB SANDS BOOTH #5547



PRODIF 96

SEK'D

Join us !

CIRCLE #049 ON PRODUCT INFO CARD

SEK'D America
P.O.Box 5497
Santa Rosa, CA 95402
Tel: 707-578-2023
Fax: 707-578-2025
eMail: info@sekd.com
Web: www.sekd.com

For more information please call 1-800-330-7753 or visit our WEB site: www.sekd.com

JOE MARDIN

A LIFE IN THE STUDIO

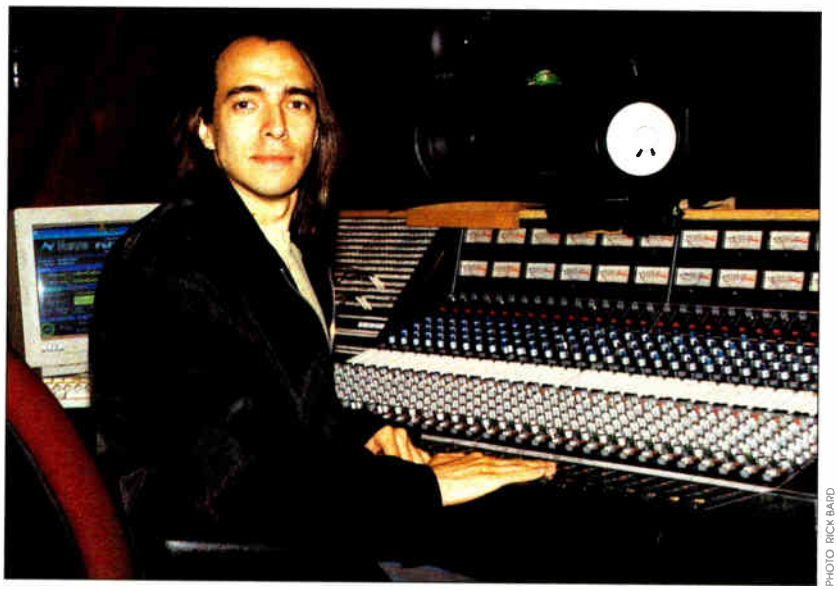


PHOTO: RICK BAIRD

A famous name might get you in the door, but talent is what keeps you there. Ask Joe Mardin, the son of the Grammy-winning New York producer/arranger Arif Mardin. Yes, he grew up at his father's side in control rooms all over New York, and this led to his first co-productions. But he also spent countless hours away from dad—learning studio techniques, studying arranging and music theory and playing the drums. Now he has one of those coveted multifaceted careers as producer/arranger/songwriter/musician, with a bushel of impressive credits to show for his dedication to those crafts.

As a producer or co-producer, he's worked on tracks by such artists as Kenny Loggins, Aretha Franklin, Ofra Haza, Bette Midler, George Benson, Roberta Flack, Chaka Khan and Michael Crawford. He's written arrangements for Aretha, Daryl Hall, Carly Simon, Paul Carrack, Chaka Khan, Corey Glover and many others. His drumming credits include cuts by Anita Baker, Manhattan Transfer and George Benson. And he's the drummer and producer for the band Danielle's Mouth, whose first album came out last year on Mardin's own label, NuNoise Records. Mardin has worked in many of the top studios in New York and Los Angeles, and he also has his own modestly equipped workspace, Essential Recording in Manhattan. He may be a chip off the old block, but he's also carved out his own special niche.

Give me a thumbnail sketch of your childhood and how it led you to a career in music.

I was born in New York to Turkish parents, and I grew up in the music industry. Music was always in the house. And I lived in the studio more or less. I would go to the studio with my dad all the time and watch sessions, and I guess you could say that from that I caught the bug. One of my first memories of the studio is hanging out behind Bernard Purdie and watching him play drums on an Aretha Franklin session. I was very fortunate. I remember being there when [Aretha's] "Until You Come Back to Me" was recorded. Then I started to play drums; that was my first instrument.

Did your dad ever discourage you?

BY BLAIR JACKSON

He never discouraged me. My parents had the attitude of "Do whatever you want to do—be a doctor or lawyer or musician. Just don't be a bum." [Laughs] They were very supportive. I think my mother silently hoped I wouldn't get into the business because she knew how difficult it was, but she didn't actually share that with me until fairly recently.

Has the Mardin name been a help or a hindrance or both?

Definitely both. I learned a lot and had amazing training just being around my dad when he was working, and seeing all the things I got to see and the people I got to meet and the tips that I would get. So that was all really great. But then, when I went to school at Berklee College of Music, certain teachers would think, "Oh, Arif Mardin's son. He probably thinks he knows everything," or I was expected to be some genius. And of course, people always measure me against him, which I've come to expect. I don't know—these days, now that I've been a professional in the industry for ten years, I get less of that. The people I've worked with know that I do what I do in my own way.

How much of what you know about recording did you learn in school, and how much was from osmosis, just being in the studio for many years?

In school I mainly studied orchestration and composition. Actually, when I was still in high school, I was also studying with a private teacher outside of school—basic theory, basic arranging. I was also making demos at home, not writing the music down, but using the Portastudio and writing songs and doing basic rhythm arrangements with synths and a drum machine. Then, when I went to Berklee I started getting into the craft of writing two-horn arrangements, four-horn arrangements, all the way

Your K2500 Just Got an Organ Transplant and it's FREE!

Congratulations Kurzweil K2500 owners! As part of our ongoing commitment to "non-obsolescence by design," we are giving you the amazing sounding KB-3 mode free!*

KB-3 turns the K2500 into a virtual Hammond™ B-3 and much more.

* This software upgrade is FREE at our FTP site along with downloadable manual for K2500 owners (a $300.00 value MSRP). Hard copy manual, software disks and button function overlay available for purchase for a limited time only ($65.00 plus handling). Contact Kurzweil accessories at 1-800-400-6658. New factory equipped (v.2.52) K2500's will have a list price increase of $300.00, so, buy a K2500 now and get KB-3 from our FTP site FREE.

- **Front panel sliders and mod-wheel act as real-time drawbars.**
- **K2500 buttons provide instant control of percussion, vibrato/chorus & roto-speaker speed.**
- **Edit parameters: organ model, key click, percussion, EQ, modulation routings, leakage models & drawbar tunings.**
- **New, powerful synthesis architecture using tone wheel models!**

KB3

KURZWEIL Music Systems

Kurzweil Music Systems
800-421-9846
www.youngchang.com/kurzweil

Young Chang Canada, Corp.
905-948-8052

CIRCLE #050 ON PRODUCT INFO CARD

through composing for big band. I really loved it. I'm sure that was influenced by my father, because I admired what he did so much.

I think I learned most of what I know about making records from being in the studio and seeing all those great sessions. And I think I learned a lot about artistry in music by osmosis from being around my father, because his approach is very artistic. There's always a perspective in his work that comes from being an artist and understanding what artists are about, as opposed to being a guy who just wants to make hit records. His attitude is more, "Let's make music we enjoy, and hopefully it will also be commercially successful."

Who are the arrangers who have most influenced your work?

My dad, of course. But also Claire Fischer, Van Dyke Parks, Jeremy Lubbock, Paul Buckmaster. I also go back to classical records. I listen to Bartok and Stravinsky, and while it might be difficult to adapt their ideas into a pop song, certainly that's where some of my inspiration comes from.

What was your first break?

That's hard to say because I was always sort of there. I guess working with Anita Baker was pretty important, because it was a project that had nothing to do with my father. Tommy LiPuma hired me. He hired me for some sequencing for pre-production, and then I knew that they wanted to do "The Look of Love," and Tommy said, "She thinks it should be arranged like 'Been So Long' from her second album." I ended up doing an arrangement in my little home studio, and everyone seemed to like it a lot. That cinched it.

Is it hard to be an individual and come up with your own idea of things when certain trends in music and production become dominant for long stretches? People start using the same synth patches or drum sounds or sequencing ideas...

I actually produced an album by an Irish artist named Pierce Turner who had a song called "Individual," and the chorus was, "It's hard to be individual/ It's hard to write your own principles/ It's hard to be original," and it encapsulated exactly the way I felt about the question you're asking. I think it's very hard to go out and actually be original in the music business, because you have to make it easy for the machinery to see that the record you've made is going to be viable in the marketplace. So you do end up

Mardin plays drums in and produces the band Danielle's Mouth.

listening to a lot of other records and making sure that what you do is comparable—that it's as exciting and has similar elements. I'll admit to doing that, but hopefully in my work there's still some art and originality in it.

How was it working with Aretha on your own?

What can you say about her? She's amazing. The things she deems to be unworthy are incredible. You say, "Wow, I can't believe we're not going to use that," and then she sings it again and you're even more blown away. She's great to work with. She really cares. Even on the mixes, she'd have little production suggestions that were right-on. She knows exactly what she's doing.

What's the most challenging aspect of what you do? You do so much different stuff, from arranging to producing to playing drums.

I love all of it, and I find that if I end up doing one thing for too many months I really start yearning to do one of the other things. Like if I'm sitting at home doing a lot of sequencing and a lot of MIDI tracks, I start to yearn to write some orchestral arrangements. Probably the most challenging part of it is the business. That's what drives me the most nuts.

How do you juggle the different aspects of your career? For instance, do you know what you're going to be doing in three months?

No, I don't. I'm hoping that I'll either be out on the road playing drums, or I'll be home producing records. The production assignments would probably come first. But my life changes so much from day to day, it's hard to predict. Like today I'm working on a jingle. We're redoing "Baby I Love You" by Aretha Franklin for some product which I suddenly can't even remember the name of. [Laughs] About five years ago I actu-

Electronic Musician 1998 EDITORS CHOICE

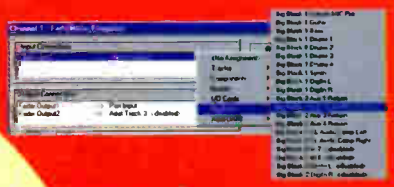
EQ 1997 Nominee

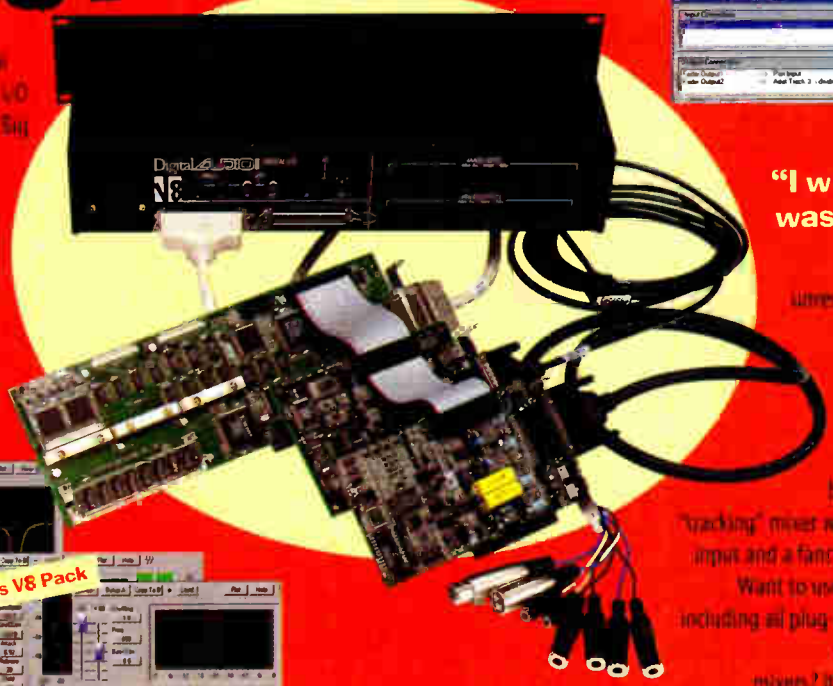
Burn Rubber!

The V8 from Digital Audio Labs. It's 16 real tracks of hard disk recording and editing for the PC. It's up to 32 channels of digital mixing. It's a rack full of realtime EQ's, dynamics processors, and effects units. It's a real hot rod!

Audio Quality is Job 1

When it comes to sound quality, Digital Audio Labs cuts no corners and the V8 I/O peripherals are no exception. Take the Big Block for example: This 8 channel rack mount A/D/D/A sports S/N ratios in excess of 90dB and crosstalk better than 100dB! Add to that the ability to completely configure the Big Block from software, right down to the individual analog gain trims. We even isolated the ground, making the system virtually impervious to ground loops.





"I wish my mixer was this flexible"

With the V8's completely unrestricted, totally automated mixing and routing architecture, your only limitation is your imagination. If you can think of a mixer, you can build it. Want a specialized "tracking" mixer with a compressor on every input and a fancy cue matrix? No problem. Want to use that vocal input channel, including all plug-in effects settings and aux sends, on several different mixes? It's done. Create specialized consoles for each job or project and modify and build new channels and buses as needed.

300 MIPS, No Waiting

Add up to three DSP Superchargers and RAM induction modules to the V8 and get channels upon channels of realtime, simultaneous EQs, dynamics processors, and reverbs with Gearhead Approved plug-in packages like the Waves V8 Pack®. Use them on disk tracks or stream live inputs and ADAT channels through them, transforming your V8 into a monster effects rack!

The Slickest ADAT® Interface on the Planet

Why settle for just the 8 channels of audio when the V8 gives you the whole ADAT enchilada! The V8 MDM Custom interface is the only PC system that includes 8 channels of ADAT light pipe plus full synchronous ADAT transport control. With the MDM Custom, your ADATs completely disappear into your V8 system. Remote control a single ADAT or banks of them. Fly ADAT tracks on and off the hard disk in rock solid sync. Simultaneously play back ADAT and hard disk tracks through a single mixer with full automation and realtime effects. (Hang in there, DA88 owners- we have a special surprise for you...)

The Audio Gearhead Partners: The V8's Secret Weapon

Since the V8 runs entirely on third party software, you already know how to drive it! Why shackle yourself to a proprietary software interface when you can choose your own from among a growing list of Audio Gearhead Partners? And don't worry about compatibility between programs and plug-ins; if you see the Audio Gearhead Approved symbol, they're simpatico. But what if your favorite software's not yet Audio Gearhead Approved? No Sweat. The V8's .WAV emulation makes standard windows programs think they're talking to up to four CardDPlus's. Now that's hip, Daddy!

adat® WAVES® MINNETONKA® SOFTWARE CAKEWALK® MUSIC SOFTWARE

TASCAM® TDIF-1® Q® QSOUND WaveMechanics SEK'D Samplitude® Studio

Digital AUDIO LABS

13705 26th Avenue North Plymouth, MN 55441
612/559.9098 Fax 612/559.0124
www.digitalaudio.com ©1997 Digital Audio Labs

CIRCLE #051 ON PRODUCT INFO CARD

ally did a re-creation of James Brown's "I Got You" for a laxative company! I still see that [commercial] from time to time, so I guess it worked.

Congratulations, I guess....

It's pretty weird. [Laughs] But things keep coming up for me. I get interesting phone calls.

How did you hook up with Ofra Haza?

Actually, they called my dad, and he knew that I was listening to her records and really into her. I'd been saying to him, "Hey, we're from Turkey. We have all this Middle Eastern influence in our blood, we should really work with her." Then about a month later the phone rang. I ended up doing the arrangements and co-producing. I really enjoyed it. She's a fantastic singer.

Is the relationship you have with your dad in the studio different from your personal relationship?

No, it's very similar. We get along very well.

I bet he knows how to push your buttons.

Nah. He's really nice! You know, he just wants to make the best record he can and have a good time doing it.

How has the art of dance remixes changed during the time you've been doing it?

I do less and less of that these days, because it's difficult to do it unless you really live that lifestyle—if you're out in the clubs all the time. You do a lot of those records, and then your name becomes politically acceptable to the people who are in that part of the industry, which is really its own thing...

"Let's see, is it jungle this week?"

Exactly! When I produce records, I try to insist in my contract that I have at least the opportunity to do a remix, even if they hire some major remixer. I'll ask for a small budget to do a remix as well, because I like to maintain the integrity of what I do with the artist. Otherwise, it feels like they're taking your record and keeping the vocal, which you produced, and then doing something completely different to it. It's hard to listen to someone taking your record and changing it completely.

What would be a dream project for you—one where you write, produce and arrange a whole album rather than just one or two tracks as you've mainly done?

It's interesting—in the culture that's existed in the record industry the past ten years, very few producers produce albums from beginning to end, especially in R&B. And that's too bad, because when you do the whole album, you can look at everything with more depth and see how one song fits into the others, how this arrangement complements that one and so on. Whereas when you get an assignment from a record company to do a certain song or two songs with a particular artist, you know you have to try to make them into singles. Even if the songs aren't good enough, you have to try to turn them into singles.

So what do you do in a situation like that? The song is pretty good but not great...

PHOTO: GARY GERSHOFF

Working on a remix of Aretha Franklin's "Rock Steady" at Right Track in NYC in January were (clockwise from back left) co-producers Steve Skinner, Joe Mardin and Arif Mardin and engineer Axel Niehause

The New PCM 81 Digital Effects Processor




"You'll run out of ideas before you run out of effects."


Scott Martin Gershin
Sound Designer


NEW FEATURES • Pitch Shift algorithms on-board • 20 seconds of stereo delay • AES Digital I/O

The new PCM 81 Digital Effects Processor has everything that made the PCM 80 the choice of professionals – and more. More effects, more algorithms, longer delay and full AES/EBU I/O. Each effect has an uncompromised stereo reverb with several voices of additional effects. A full complement of *Pitch Shifters* provides everything from pitch correction to unique special effects. **300** meticulously-crafted presets give you instant access to pitch, reverb, ambience, sophisticated modulators and dynamic spatialization effects for 2-channel or surround sound applications.

With its huge assortment of superb effects, the PCM 81 is the perfect tool for a sound designer like **Scott Martin Gershin** of *Soundelux Media Labs*. Scott, who used the PCM 81 to process his voice as the voice of *Flubber*, says, "*This is the best pitch shifter I've used. Our job is to create emotional illusions in audio and the PCM 81 is a powerful tool to get us there. I feel I have only scratched the surface of what can be created on the PCM 81 and encourage everyone to explore the depths of this processor.*"

Explore the depths with Scott's customized presets - **Send us proof of purchase and your PCM 81 serial number by July 30, 1998, and we'll send you the Scott Martin Gershin Preset Card – FREE.**

Heard In All The Right Places

lexicon

A Harman International Company

CIRCLE 065 ON PRODUCT INFO CARD

3 Oak Park, Bedford, MA 01730-1441
Tel: 781 • 280-0300 Fax: 781 • 280-0490
Email: info@lexicon.com Web: www.lexicon.com

Scott Martin Gershin's film credits include: *JFK, True Lies, Braveheart, Flubber and Mouse Hunt*

Usually, what I'll do is completely drop the demo. A lot of times, the demo becomes a part of the song in either the A&R person's or the artist's mind, and producers then try to duplicate the demo. Demos are getting better and better. But sometimes I'll try to drop the demo and come up with something completely original, completely different, to see if that will take that so-so song somewhere else. But let's be honest: It's very rare that the arrangement of a song is what turns it into a hit. It might enhance it, and as an arranger I might be able to help that song, but I can't say I can take a mediocre song and turn it into a hit song.

Do you have a favorite New York studio?

I work at Greene Street a lot, but I go all over the place—Hit Factory, I like Right Track very much. Greene Street has two consoles I like a lot, an Amek APC with GML automation, and an API Legacy which is really great. We mixed the Danielle's Mouth record on that. That room is constantly booked now because of the API. I have a real affinity for that console.

How much of the work you do can be done in your home studio?

It depends on the type of record I'm working on. With a lot of the R&B records, we're doing a lot of sequencing, so I'll get a tape of the song. I'll talk to the artist, we'll get a key and then I'll work the arrangement up at home with Performer on the Mac. Then we'll send tapes back and forth a bit and, when everybody's happy, we'll go in and I'll dump it in the studio and we'll work from there. But on something like Danielle's Mouth, we hardly sequenced anything, so we spent a lot of time in the rehearsal studio working on the arrangements.

Who are some artists you'd like to work with?

I have a wish list, but it sort of feels weird saying it because to say it feels like sending a message and I don't want to sound pushy. [Laughs]

Okay, how about someone who's no longer around who you would have liked to have worked with?

Oh man, where do I begin? How about Duke Ellington and Stravinsky? Charlie Parker. The list goes on. Actually, those are all people I would have been happy just to *watch*. Sometimes just being in the same room is enough. ■

Blair Jackson is executive editor of Mix.

The Missing Ingredient Has Always Been the Amplifier!

The engineers at Hafler have gone to great lengths to mix the perfect ingredients. Our Trans•nova/DIAMOND amplifier will deliver the accuracy and transparency your music deserves. These circuits combined with our proprietary high frequency waveguide and low frequency transducer will deliver a smooth response and create an undeniable depth of field.

Hafler
the standard

Go hear the TRM8 Trans•nova Reference Monitor

"The TRM8 is a true synergy between speaker and amplifier, something rare in pro audio"

"The low distortion lets you listen without fatigue, yet enables you to hear precise detail"

"At $2400 a pair, they are a real bargain"

Tom Jung
Technical consultant for Pro Audio Review
President and recording/ mastering engineer of Digital Mastering Products (DMP)

Tempe, AZ 85281 USA • 888-HAFLER1 (phone) • 602-894-1528 (fax) • www.hafler.com

CIRCLE #056 ON PRODUCT INFO CARD

RICK ALLEN

DAD'S DEMO DIGS

As drummer for UK rockers Def Leppard, Rick Allen has recorded in world-class studios. But he's always pursued the idea of home recording, he says, "because I just enjoyed being around the house." Allen has acquired a cache of recording equipment over the years, and he's had studio rooms in previous homes. In his present house in Encino, Calif., though, his gear had simply been set up in the living room. But this past summer, Allen and his wife, Stacy, had a baby, and he realized that in order to stay at home as much as he wanted to, he needed more in the way of a work space—not to mention a little isolation! So he contacted studio designer Chris Pelonis of Pelonis Sound and Acoustics and sought his help in turning the living room into two spaces—an iso room and a control room. "I wanted a noise room, and I wanted a listening room—something where I could sit and have a reference point," Allen says, "and Chris had some really good ideas."

Pelonis specified a soundproof doorway into the room and acoustical treatments in the interior. He also designed a large, semicircular, partially isolated drum booth, which fills about a third of the room. The booth has a concrete slab floor and geometry that creates a live sound with an even, cracking decay, which is just what Allen was looking for. Previously, Allen says, "When I finished recording drums, I always found myself tweaking hi-mids and highs and never rolling the stuff out necessarily. So I told Chris I'd rather have a room where it was more just a choice of drums, heads, mics and placement and leave the EQ exactly where it is and let the room do the work."

Construction was completed last fall, and Allen set to work on his own. (Asked about his engineering chops, he replies, "When I get a piece of gear, I'm looking more for an effect or character than a 'good' sound—I'll wind it from zero to all the way on. I'm like an engineer's nightmare, really!") In January, Def Leppard guitarists Phil Collen and Vivian Campbell joined Allen at his home, and the trio spent a couple of weeks rehearsing and demoing material for the band's next Mercury release. Engineer Gerald McDonnell (whose credits include The Chieftains and Paul Brady) came over from Dublin to help with the sessions.

PHOTO: BETSY ANNAS

Def Leppard drummer Rick Allen with daughter Lauren

For the demos, McDonnell says, Allen was mostly using his Roland TD-10 pads, set up in the booth. "The two guitarists were set up in the control room with their Marshall stacks and effects," he says, "and both of them had Palmer speaker simulators. The bass went through a DI and a tube preamp/compressor, and that was how they were jamming out songs. Vocals would go on later." He adds that the booth is a nice space for the acoustic drums: "If you're looking for tight, punchy, reflective-room sorts of sounds, it's ideal."

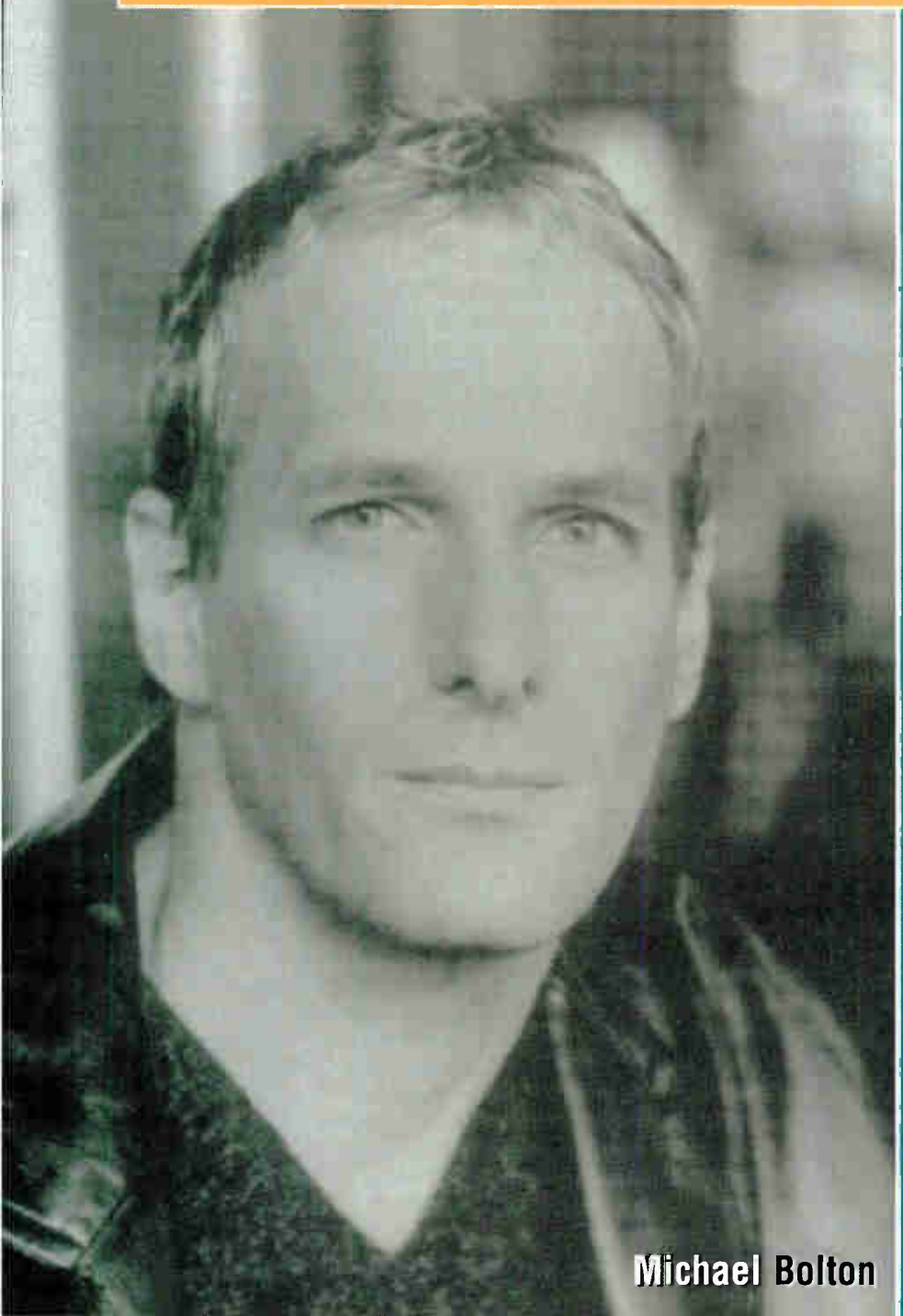
Allen's gear arsenal includes a pair of dbx 160 compressors, a Yamaha SPX 990, Lexicon's LXP-1 and ALEX, and an Alesis Quadraverb. Mics include Neumann U87s, Shure SM57s, Sennheiser 421s, and AKG 451s, a 414 and a D112. Allen's TL Audio preamp/compressor gets a lot of use, as he usually runs signal through it straight to his 32 tracks of ADAT (two XTs and two originals, synched up with BRC). For the recent demo sessions, McDonnell monitored through Allen's Mackie 32•8 and his KEF Point Source audiophile speakers. "There are the obligatory NS-10s, which I used for getting sounds," McDonnell says, "but the KEFs are much less stressful for near-field listening; they're just nice, warm-sounding speakers, which, once you know how to listen to them, are good on a 12-hour day."

With McDonnell's help, Allen and his bandmates got the bones of four new songs down in 12 days—an excellent start. "A home studio doesn't negate a proper studio," Allen says, "but working at home is wonderful. And now it's even more relevant, because it gives me the opportunity to be a dad as well." ■

BY ADAM BEYDA

Adam Beyda is an associate editor at Mix.

"I was wary of putting a speaker in my ear...



Michael Bolton

...until I used the Aphex Dominator."

"Although I was glad to get rid of stage wedges, I was apprehensive about switching to in-ear monitoring– I was wary of putting a miniature speaker in my ear. After we added the Aphex Dominator I felt much better about the system. It has been flawless in brick-wall limiting the stage mix and sounds really clean."

The Dominator is the only brickwall limiter that will give you the absolute peak protection you need while maintaining the fidelity you demand. Don't gamble with your ears– they're your most precious instruments.

APHEX SYSTEMS

IMPROVING THE WAY THE WORLD SOUNDS℠

11068 Randall Street, Sun Valley, CA 91352 U.S.A.
818-767-2929 • Fax: 818-767-2641 • http;//www.aphexsys.com

RECORDING IN HONG KONG

CROSSROADS OF TWO CULTURES

Hong Kong truly sits at the crossroads of two cultures. Since its origins more than 150 years ago as a friction point for the infamous Opium Wars between mainland China and the British Empire, this small territory has assumed a profound worldwide importance. Hong Kong was, of course, formally handed back to China in July 1997, and the enigmatic Communist Chinese regime is expected to show its true intentions for this outpost of rampant capitalism during the next half-century.

As I discovered last year during a trip through the former British colony of Kowloon and Hong Kong Island—where a roller-coaster economy, like most of those in Southeast Asia, has been the subject of a great deal of speculation—this area is full of unique solutions.

PHOTOS: MEL LAMBERT

Chief engineer Robert Porter (left) and facility manager Lai Hok Pun in Q-Sound's SSL-equipped Room A

General manager Brian Choy (left) and engineer Ako Cheung mixing tracks on the AMS Neve VR console in Avon's Studio B

And because of its reliance on a mixture of domestic and international influences, Hong Kong's burgeoning recording community is a fascinating study in miniature. This city of close to 6.5 million people, packed into an area smaller than Manhattan, supports a healthy array of facilities that cater to a wide cross-section of indigenous and Western clients. Currently, there are about a dozen 48-track analog/digital rooms.

Robert Porter, a Canadian expatriate now working as chief engineer at Q-Sound Studio in Kowloon, says, "Although the market for locally produced music in Hong Kong is small, with modest budgets, we see a lot of sessions for local and Taiwan-based artists." A good-selling local album might ship between 25,000 and 50,000 units, Porter says, while a major hit might move between 500,000 and a million. The facility also attracts clients from Japan, Singapore and Malaysia.

Q-Sound is owned by a quartet of industry professionals: Andy Lau Tak-Wah, Andrew Tuason (A&R director with EMI-Asia), Lai Hok Pun (facility manager) and Landow Lee (former vice president of BMG Entertainment-Pan China). Andy Lau is considered by many to be the current leader of four high-visibility artists/producers who dominate the local charts and who are often referred to as the "Heavenly Kings."

The studio complex features three control rooms on two floors of an apartment building off one of the busy thoroughfares in downtown Kowloon. (It seems that the city of Hong Kong has far less stringent zoning laws than most American cities. With space at a premium,

—CONTINUED ON PAGE 90

BY MEL LAMBERT

SING SING STUDIOS

Richmond, Victoria, Australia

PHOTOS: ALEX ZATTELMAN

Sing Sing's SSL-equipped mixing room

Located in Richmond, an inner-city suburb of Melbourne, Sing Sing Studios is thriving in a town where many established studios have been shrinking or closing. Sing Sing was originally formed in 1984 by the merging of two small facilities: Kaj Dahlstrom's KAJ Studio, a 16-track room at the Richmond location, and from the outer suburbs, Phil Butson and Trevor Reading's Studio 250.

Sing Sing started its life with a Soundcraft 2400, a Studer A80 MkIII 24-track and JBL 4435 main monitors. Dahlstrom, Butson and Reading moved the gear into 274 square meters of an old chocolate factory, which gave them a reasonably sized (18x8 meters) recording space that attracted many first-timers for demos. The Mullanes, an early incarnation of Crowded House, recorded a batch of demos with Kaj, some of which made it onto the first Crowded House album (though the album credits the Sydney studio Paradise). All talented musicians, the three owners shared engineering duties as well as management and maintenance. Without the major overhead costs of payroll and heavy lease payments, they could offer competitive rates from the very beginning. "Our pricing policy has been to offer a reasonable rate for the equipment we have and try not to budge," Butson says. "Of course, when you need to fill a week, you do what you can."

After a few years in the low end of the market, scrambling for demos and small-budget recordings, the owners made a courageous up-market move. "We could see that the lower end of the market was going to be a bun fight," Butson says. "It got to the stage where we thought if you have to hassle for $400 a day, what's the point? So we thought we'd try to challenge the high end of the market." In 1990, Sing purchased a new automated Amek Mozart console, which made the studio more high-end and set it apart, as most of the other facilities in town have SSLs.

As work picked up, the principals added a small overdub studio, equipped with a second-hand Ampex 1200 and the Soundcraft 2400. In 1992, they purchased a Sony 3324 digital multitrack and a 24-pack of Dolby SR.

The main recording room with Neve and Amek consoles

And in 1995, the owners were able to take advantage of the downsizing of one of the major studios in Melbourne by buying a package that included a 6000/4000E G Series 48-channel SSL and two multitracks: a second-hand Sony JH-234 and a new Sony 3324. They constructed a new mixing room in the popular tear-drop shape and hired Alan Smart (ex-SSL) to install 16 stereo channels with automated panning. An added attraction is the 24 channels of Neve 33115 discrete mic/line preamps and EQ and the addition of a new pair of Quested 410 monitors. "It was our good

BY ROSS COCKLE

fortune that Roger Quested was at a show in Sydney launching his speakers and offered to do his first Australian customers a favor and check out the shell of the control room," Dahlstrom says. "He flew down to Melbourne, and he came to the studio [and helped us make] the most of the tear-drop shape of the shell. We were pleased to have his suggestions, and the room sounds great."

As the new equipment has been purchased and rooms have been added or upgraded, Sing Sing's owners (now just Dahlstrom and Butson; Butson bought out Reading's part) have done all of their own construction. This is another way they've managed to keep control of their own costs and, consequently, on the rates they could offer.

"Now we can offer 48 tracks of digital, analog Dolby SR, a tracking room with four separate recording spaces, including in the control room, an 18-channel Neve 1073 Classic and a well-appointed mix room that is a little more expensive than the tracking room," Butson says. "But in the main room, we are still offering the same card rate we were offering when we first started. The irony is that we're now one of the most expensive studios, but we haven't changed our basic rate; others have had to lower their rates, and we've put in a bucket-load of extra equipment." In the planning stages for Sing Sing is a Sonic Solutions mastering suite. Over the years, Sing Sing has also developed a dependable freelance support staff. "I can't stress too greatly how much we rely on our freelance staff," Butson adds. "Our tech, Des Amos, is one of those special people that will come when called, and we know how important that is."

Recent tracking and mixing clients at Sing Sing have included Midnight Oil, Nick Launey and Flood. ■

—FROM PAGE 88, RECORDING IN HONG KONG

and escalating real estate costs, a number of prominent studios are to be found in such locations.) Room A features an SSL 4048 G Plus console with Total Recall; Room B a Raindirk Symphony II with Optifile Tetra automation; and Room C a 64-input Otari Concept I with Eagle automation. Clients have a choice of Sony PCM-3324/3348 digital and Otari MX-80 analog multitracks. Small overdub and vocal booths are also featured. Acoustic design for all three studios was by Roger Quested. Monitoring is provided by Quested Q210/QSB212 active four-way systems in Room A, H2120 three-way systems in B and Quested H208s in C. Room booking rates range from HK$880 per hour (around $110 U.S.) for Rooms B and C, to HK$1,330/hour ($166 U.S.) for the flagship Room A, including a session engineer, digital multitrack and a full collection of outboard gear.

A unique aspect of music recorded at a number of Hong Kong facilities, Porter says, stems from the musicality of the local Cantonese language. (Mandarin is the primary language on mainland China.) "Often, we will be booked to record the background melody," he explains, "and then the tapes will be turned over to a lyricist." Because the Chinese language is so tonal, it is vital that the lyrics blend harmonically with the melody, which means that the choice of words, and their meaning, become secondary to their blending seamlessly with the music.

Professionals all over the world discover the highest level in german tube microphone engineering

When will you?

Here is the comment of someone who did:

"I just used my Brauner VM1 on a week of solo vocal sessions. Did the whole album with it. It sounds unbelievably clear and warm! I absolutely love it! The VM1 is my new „favorite" vocal mike."

Bruce Swedien
(Engineer to Michael Jackson, Quincy Jones...)

Studio Consultants, 321 West 44th Street, New York, NY 10036, Phone 212-586-7376, Fax 212-582-2169
The Mic Shop, Bill Brodley, 5251 Waddell Hollow Road, Franklin Tennessee, TN 37064, Phone 615-595-1717, Fax 615-595-1718
Coast Recording Equipment Supply Inc., 6223 Santa Monica Blvd., Hollywood, CA 90038, Phone 213-462-6058, Fax 213-462-6064

Dirk Brauner
Tube Equipment Manufacturers

von-de-Wall-Straße 1
46499 Hamminkeln/Germany
Phone: +49 (0)2856-9270 ■ Fax: +49 (0)2856-9271
www.dirk-brauner.com

CIRCLE #039 ON PRODUCT INFO CARD

Discover the sound you've always been looking for. VM1, more than just a legend.

"We use a lot of pickup bands, keyboard players and background singers for these types of dates," the engineer says. "A lot of the time, the basic tracks will be written at a home studio, and then the producer will come in here to record the background vocals or chorus with, usually, two men and two women. Then when the lyrics have been written—we often receive them here via fax—the featured artist will return to the studio with an arranger, who will coach the artist to achieve the required harmonic balance.

"We use Pro Tools to touch up and comp these vocal tracks—sometimes line by line—to ensure a seamless production." Albums often just comprise a collection of songs, with no overall theme. To achieve a fast turnaround, Porter concedes, "Most current productions are tracked against a click track or MIDI sequence, and are often pretty structured." Because of limited budgets, an entire album might be completed in around 300 hours of studio time, including mixing.

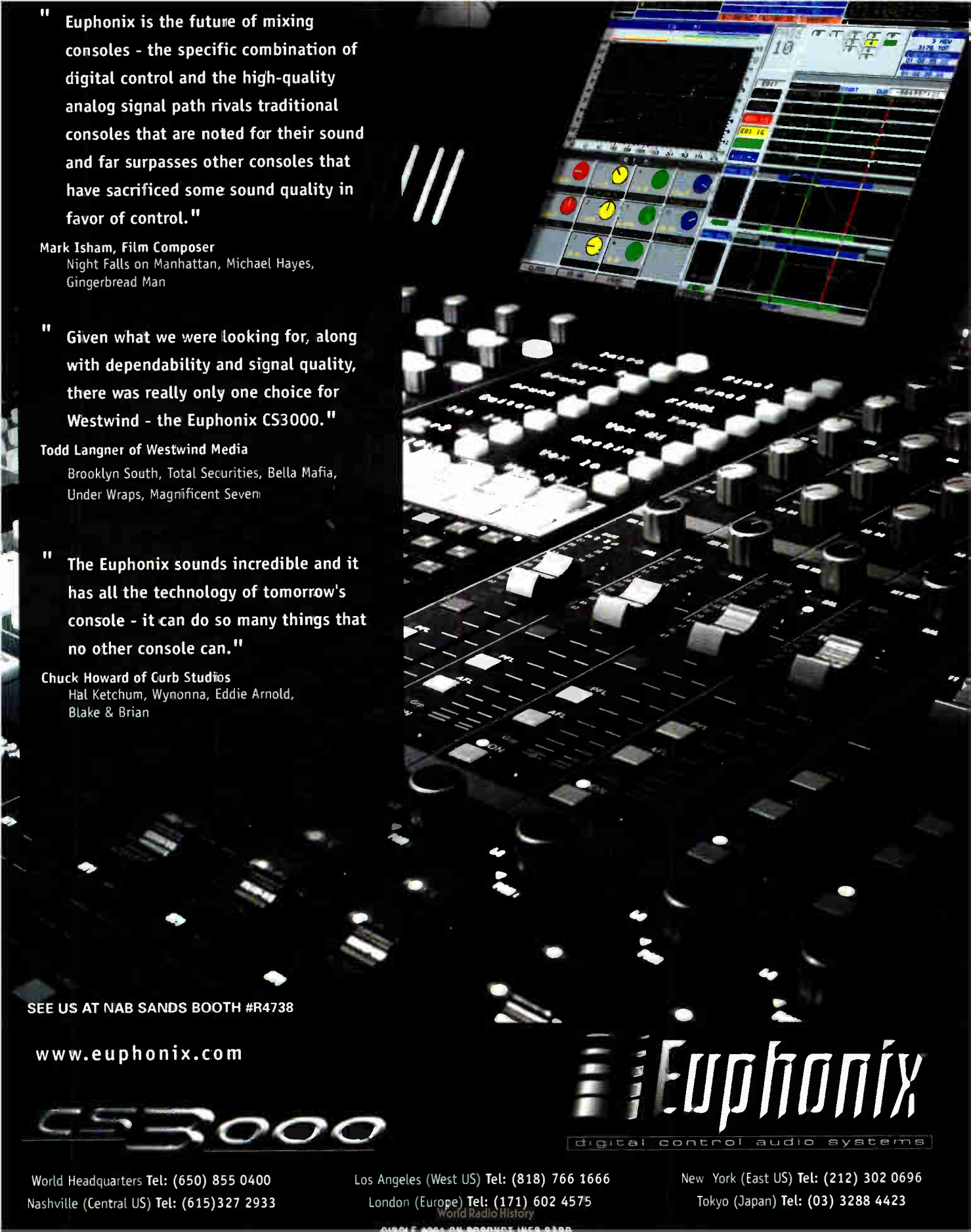
"Compared to an American session, where the producer is God, here in Hong Kong the artist is top dog," Porter says. While some local producers are in charge of all aspects of a production, "most are working for the record company; the label chooses the songs and the arranger. As a result, the artist often takes control of a session and is backed by the label. And because of the emphasis on harmony of the lyrics, and how they blend with the music rather than what they *mean*, vocalists are considered stars of a production, not necessarily just the singer. In many ways, the scene here—with its emphasis on the artist, the song and the arrangement—is more like Nashville than Los Angeles or New York."

Q-Sound has also seen sessions with a number of Western acts, including Peter Gabriel, who stopped in during a world tour a couple of years ago to record vocals to "Summertime," for George Martin's tribute album, *The Glory of Gershwin* with Larry Alder.

Avon Studios, a stone's throw away from Q-Sound, features three control rooms on two adjoining floors of a 15-story commercial building. The facility handles a cross-section of clients from Hong Kong (PolyGram, Warner Bros. and Cine Poly), Taiwan (Rock Records) and Japan. Designed in the early '80s by acoustician Tom Hidley, the facility was purpose-built for CBS-Sony; its current owners, the Chiu family, purchased the complex some three years ago. (Avon is relatively unique by Hong Kong standards, in that it was built during the building's original construction; the majority of other facilities are conversions.) Room rates, which include a staff engineer, digital multitrack and outboard, extend from HK$650 per hour (around U.S. $80) for Studio C to HK$1,500/hour ($185) for Studio A.

Studio A houses a 48-channel SSL 9000 J Series with Total Recall automation; a companion live area provides 670 square feet of flexible tracking/overdub space. Studio B is designed primarily for remixing and features a 48-channel AMS Neve VR Series console with SSL Total Recall. Both rooms offer TAD monitoring systems. Studio C is intended for mastering, plus analog 24-track overdubs; hardware includes a vintage MCI JH-600 console and a full Sonic Solutions rig. A new room, with design by Sam Toyoshima and equipped with an SSL 4058 G Plus, is scheduled to be completed early this year.

According to Avon general manager Brian Choy, "The acoustics in Studio A and B are carefully matched, so that projects can track in one room and



" Euphonix is the future of mixing consoles - the specific combination of digital control and the high-quality analog signal path rivals traditional consoles that are noted for their sound and far surpasses other consoles that have sacrificed some sound quality in favor of control."

Mark Isham, Film Composer
Night Falls on Manhattan, Michael Hayes, Gingerbread Man

" Given what we were looking for, along with dependability and signal quality, there was really only one choice for Westwind - the Euphonix CS3000."

Todd Langner of Westwind Media
Brooklyn South, Total Securities, Bella Mafia, Under Wraps, Magnificent Seven

" The Euphonix sounds incredible and it has all the technology of tomorrow's console - it can do so many things that no other console can."

Chuck Howard of Curb Studios
Hal Ketchum, Wynonna, Eddie Arnold, Blake & Brian

SEE US AT NAB SANDS BOOTH #R4738

www.euphonix.com

CS3000

Euphonix
digital control audio systems

World Headquarters **Tel:** (650) 855 0400
Nashville (Central US) **Tel:** (615)327 2933
Los Angeles (West US) **Tel:** (818) 766 1666
London (Europe) **Tel:** (171) 602 4575
New York (East US) **Tel:** (212) 302 0696
Tokyo (Japan) **Tel:** (03) 3288 4423

then mix in the other. And our new room will mean that Avon is the only Hong Kong facility to offer three 48-track rooms, with full tracking and mixing flexibility. The majority of our sessions—some 80 percent—[involve] both tracking and mixing here, a trend that is increasing. Our specialty, if you like, is to provide a combination of good acoustics, so that artists can record in a live-sounding environment, with the best equipment around. Our live areas feature tall ceilings, with plenty of trapping to contain the

"BATA KETU"

EXPLORING THE FOUNDATIONS OF CUBAN AND BRAZILIAN RHYTHMS

by Sarah Jones

Bata Ketu, a celebration of the common roots of Cuban and Brazilian sacred music, is an album that transcends cultural bounds. Percussionists Michael Spiro and Mark Lamson say the idea for the Bembé Records project developed four years ago, as they studied the traditional rhythms of Cuba and Brazil and found striking similarities. "All of the people who play this music talk about how the Africans came to the New World, and there's samba in Brazil and rumba in Cuba, and there's calypso in Trinidad and yeah, they're related, and everybody talks about it, but nobody's made a CD that went, 'Damn right it's related, it's all the same music,'" says Spiro.

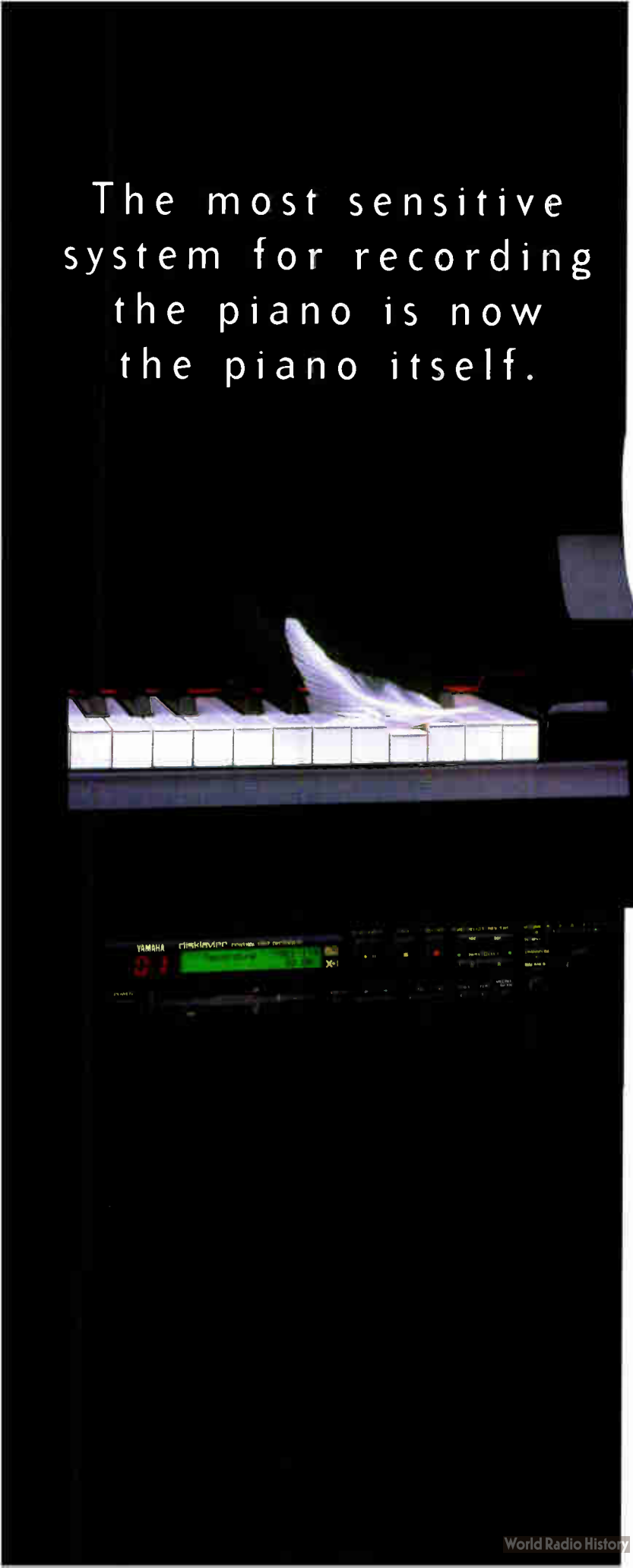
Spiro and Lamson, both professional musicians who had devoted years to the study of Afro-Cuban and Afro-Brazilian percussion, also wanted to express themselves musically within these traditions, so they constructed a montage of Cuban and Brazilian music by recording traditional vocals over a percussion bed they created and performed. The result is *Bata Ketu*, a marriage of Afro-Cuban and Brazilian traditional rhythms and folkloric songs. The work is a "musical interplay" in six acts, telling the story of Yoruba music uprooted from Africa, transplanted in Cuba and Brazil, evolving separately, then reuniting.

In the first stage of the project, Spiro and Lamson recorded various traditional percussion instruments for rhythmic beds. "After 20 years of recording, I called in every favor that I had," says Spiro. "So this record got recorded at a million different places, from a $300-an-hour studio on Tuesday to Joe's garage on Wednesday, to slums in Brazil." Wherever Spiro and Lamson recorded, their goal was to get material to tape clean, flat and with no distortion in the hope that everything would all work together during editing.

When it came time to start mixing, Spiro went to his longtime friend Russ Bond, a Bay Area recording engineer who runs Digital Audio Productions, Cupertino, Calif., which at the time was one of the first major Pro Tools facilities—48 tracks—in the country. Spiro had five ADAT tapes' worth of material and still wasn't finished recording. "Just loading the ADATs into the computer took three days," says Spiro. "I was paying just to load the damn thing in." They put the material into Pro Tools and started overdubbing percussion, laying rhythm tracks for other pieces, then transfer-

—CONTINUED ON PAGE 96

The most sensitive system for recording the piano is now the piano itself.



The finest piano recording system doesn't use tape, microphones or hard disks. It's even more sensitive; it captures key and pedal movements even if they don't make a sound. IT is the piano itself—the **Yamaha Disklavier Pro™** reproducing piano.

The Disklavier Pro **records and plays back exact pedal and keystroke attack speeds, depth and release speeds** (without any noise). It keeps pace with the fastest fingers and reproduces the complete dynamic range of all performances. Thanks to a combination of continuous action servo control sensors and solenoids, a new Yamaha LSI microprocessor and the powerful XP data format, it elevates the Yamaha Disklavier well into the professional arena.

Other new features add even more advantages. **MIDI and computer interfaces**, an on-board XG tone generator with nearly **700 premium quality voices** and the world-renown Yamaha action make the Disklavier Pro a superb MIDI controller. Plus, the Grand Silent System allows you to **create multitrack recordings** by playing orchestral sounds without hearing the piano.

To find out more about the finest, most advanced reproducing piano ever created, the new Yamaha Disklavier Pro, call (800)711-0745 ext. 408 or ask your favorite Yamaha Disklavier dealer.

YAMAHA®
disklavier®
PRO SERIES

CIRCLE #063 ON PRODUCT INFO CARD

sound. We consider that we offer something for everybody that comes to Avon Studios."

Tang Lou Studios, located across the harbor from Kowloon on the island of Hong Kong in Wanchai, offers two rooms on two floors of a commercial building. The first-floor studio, built in 1993 with design by British acoustician Keith Slaughter, houses a 56-channel SSL 4056 G Plus with Ultimation. An adjacent tracking area features high ceilings and variable acoustics. Studio 2, constructed in 1995 on an upper floor, with wonderful views across Hong

—CONTINUED ON PAGE 234

—FROM PAGE 94, "BATA KETU"

ring material back onto ADAT. Then Spiro and Lamson would record some more vocals and bring the material back. "It was done very piecemeal," says Bond.

The percussion beds were layered instrument by instrument. "We would start with a groove, let's say, Cuban Groove A, but we didn't know how long they were going to sing over that groove because we knew that we were going to do vocals in Brazil," explains Spiro. "And here we are in America, and since we can't bring a Brazilian to you, and you have to go to them, you have to lay the tracks first, and then they're going to sing. So here's Groove A. Let's record it for four minutes. We know that we're probably only going to use two minutes and 30 seconds, but just in case, we'll record four."

Spiro and Lamson took ADAT tapes of the percussion mixes to Brazil and Cuba to add vocal tracks. Spiro says one of the most challenging parts of recording the singers was getting them used to a recording environment, however primitive. "We would set microphones up in a house, and then the background singers come in and they've never been in a recording studio in their life," says Spiro. "And they're listening to the grooves, and they're dancing, and you're going, 'Please don't dance,' and they're looking at you, like, *what?* And they've never had headphones on."

All of the songs, or "acts," needed to be blended together with crossfades; that meant tying together groups of 40-plus tracks. "Each song basically morphs into the next song," explains Bond, who used reverb to maintain a cohesive feel. "When we originally mixed each component, we did them as you would do a normal album, in terms of, 'Let's give a unique feel to each song.'" says Bond. "And as we put them together, we realized that this wasn't going to work. We had to tailor the ambience of each song so it was cohesive with the song that followed it. A lot of times, between the pieces there are a lot of ambiences. And that helps a lot. It gives you the freedom to start changing the mix and set up a whole different mood."

The final mix took more than a month. "I sort of knew better, but I thought I'd have enough money to mix one complete act a day. And really it was only one scene a day; basically, Russell gave me his life for a month. I owe him big time," says Spiro, who adds that he is also grateful for the technology available to him. "I really believe the technology creates opportunities. Thank God for Pro Tools. For each track, there'd be 30 percussion instruments, Cuban vocals and Brazilian vocals. To do this project any other way you'd need 35 musicians, rehearsing for weeks. Where was the money? It's a funny kind of juxtaposition—this record is a completely folkloric, traditional music record that never could have been made without contemporary technology."

Spiro says his goal was to allow people who were unfamiliar with this kind of music the chance to listen to it and enjoy it as music. "Generally, these kinds of records tend to only be meaningful to those six people that [know about the music]," says Spiro. "What's been gratifying is that the fanatics, the six, love it, but it's also nice to have a friend of my mom's on the phone say, 'I have no idea what any of that stuff is about, but I love to listen to it.'"

Bata Ketu is on Bembé Records, a new label dedicated to the entire range of Afro-Cuban inspired music. For more information on *Bata Ketu* and other albums on Bembé Records, call 707/923-7262 or visit www.bembe.com. ■

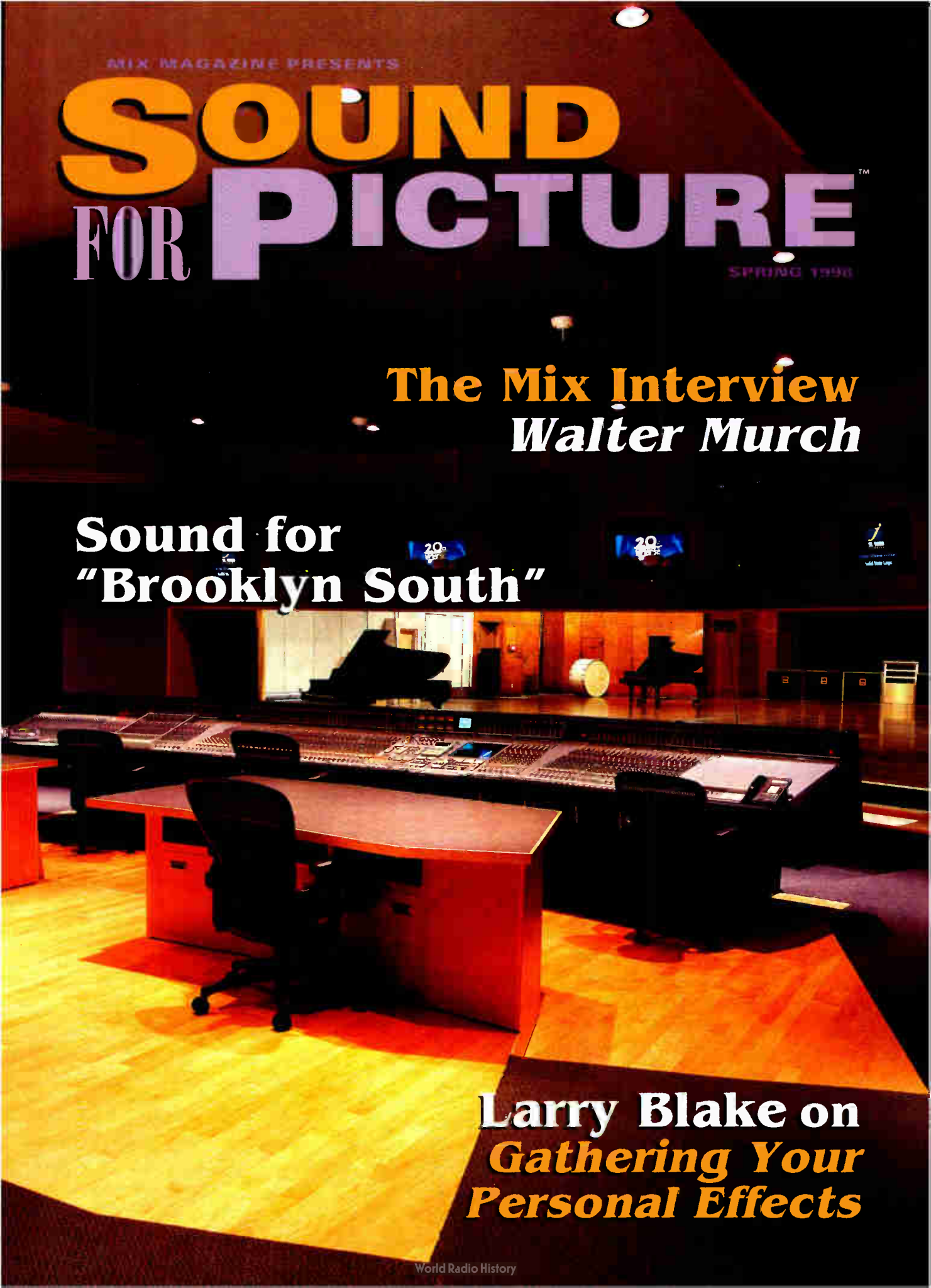
MIX MAGAZINE PRESENTS

SOUND FOR PICTURE™

SPRING 1998

The Mix Interview
Walter Murch

Sound for "Brooklyn South"



Larry Blake on *Gathering Your Personal Effects*

SOUND FOR PICTURE®

Table of Contents

SPRING 1998

COVER PHOTO: ED COLVER

Sound for Picture® is a supplement to *Mix* magazine and is published by Intertec Publishing Corp., with offices at 6400 Hollis Street #12, Emeryville, CA 94608.

On the Cover

THE NEWMAN SCORING STAGE AT 20TH CENTURY FOX

Less than a decade ago, there was serious concern in Hollywood about the demise of the great scoring rooms. For a variety of reasons, including budget reductions and the increased use of smaller ensembles and/or synth-generated themes, work was trickling away—to Salt Lake City, Eastern Europe, London and New York. On top of that, many of the stages in Los Angeles hadn't been updated significantly since their original construction in the '20s or '30s.

In June 1992, Todd-AO/Glen Glenn saw an opportunity to bring orchestral work back to Los Angeles and opened a remodeled scoring stage on the CBS Studios lot, formerly known as the Radford Stage, or Evergreen Stage. Now, five years later, 20th Century Fox has raised the bar with the October 1997 reopening and rededication of its main scoring stage (on the "Sound for Picture" cover), appropriately christened the Newman Scoring Stage after the late Fox music directors Alfred and Lionel Newman.

PHOTO: BETSY ANNAS

The inaugural session on 20th Century Fox's Newman Scoring Stage, with David Newman conducting a remake of the famous "Fox Fanfare."

Originally built in 1928 as a shooting stage for Fox Movietone Pictures, the space was converted to a scoring stage in the 1930s, with the control room on the second floor. In 1975, the control room was brought down to the main floor, eating up roughly one-third of the floor space. As renovation plans progressed, the adjacent Stage 2 opened up, allowing for a spacious, 1,500-square-foot control room to be designed and built at the east end of the facility. The stage then opened back up to its original 7,500 square feet.

Under the direction of Kiki Morris, senior VP, post-production services, studio bau:ton of Los Angeles handled the acoustic and architectural redesign, with input from Larry Goga and John Rotondi of Fox; the general contractor was Gordon & Williams. A new east wall features maple panels in unique, geometric shapes, a tribute to the old zig-zag walls, according to studio bau:ton. A maple floor was restored on the stage, and iso/drum booths were added to the side of the control room. The machine room was also updated to accommodate new technologies, and the projection room was refurbished up on the second floor.

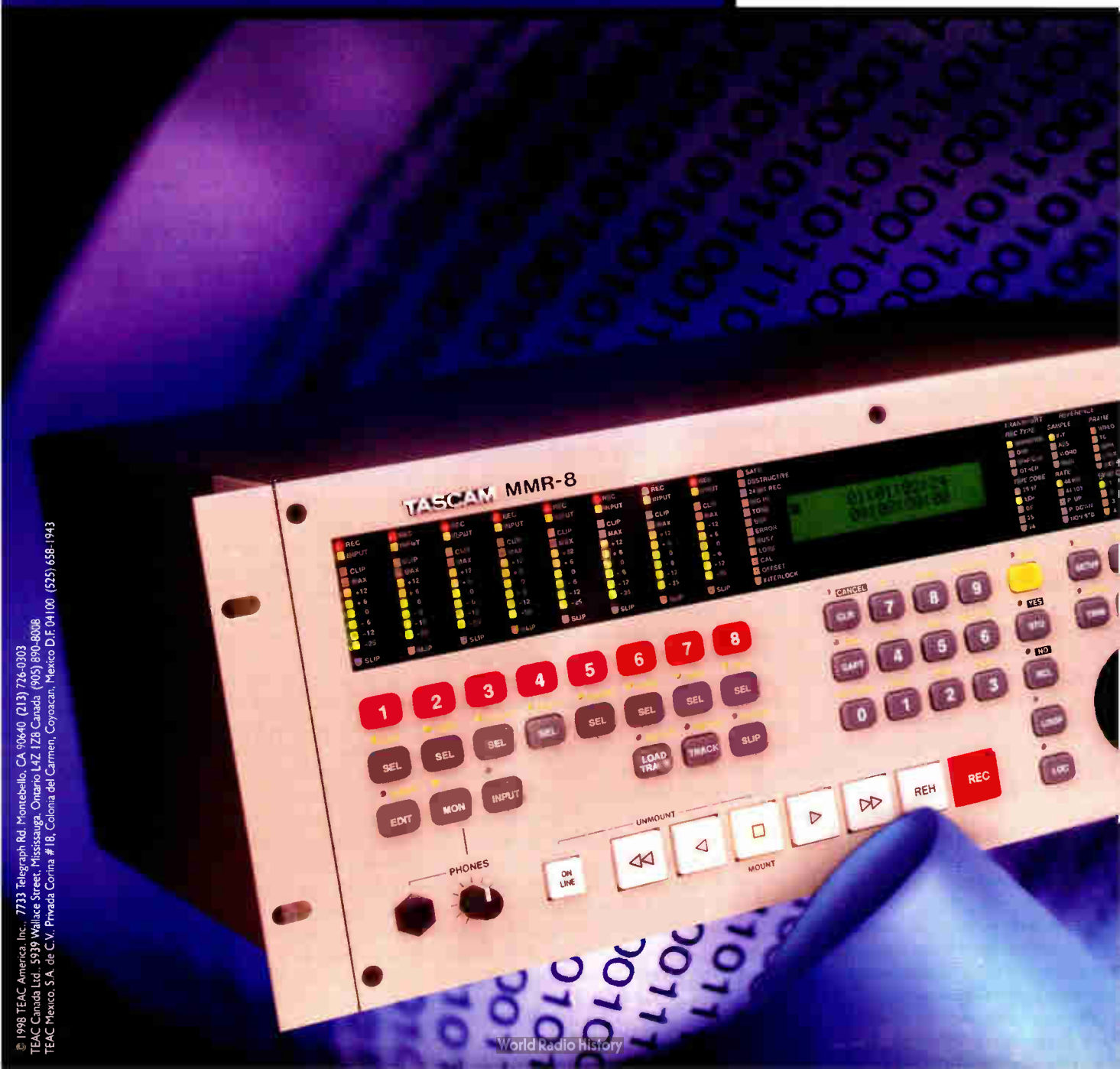
The centerpiece of the control room is a 96-input SSL 9000 J Series console. Monitoring is via a Genelec system, with soffitt-mounted 1035Bs for left-center-right and 1038As for the surrounds. All recording formats can be accommodated, from 48-track digital tape machines to the latest in MO technology.

Fox made a big splash at the October re-opening with a remake of its famous "Fanfare," the 20-second piece, with dramatic drum roll, that opens all Fox theatrical releases (see the December 1997 *Mix*). The composer/conductor on that inaugural session was David Newman, son of the piece's original composer, Alfred Newman. The engineer was John Kurlander, who had just completed the score for the Fox animated feature *Anastasia*.

Since then, the room has hosted scoring sessions for *The Quest for Camelot*, *Payback* and *Krippendorff's Tribe*. ■

INTRODUCING CROSS PLATFORM, MULTI-FORMAT DIGITAL DUBBING FROM TASCAM

The TASCAM MMR-8 Digital Dubber Will Open Your Mind. Now, there's no reason to get locked into a closed, proprietary digital dubbing system. With TASCAM's Open Systems approach to post-production audio, you make the choice. That's because the TASCAM MMR-8 is the only tapeless digital multitrack recorder that directly mounts and reads nearly any audio file format — MAC or PC. This means Pro Tools 4.X session files, OMF (*Open Media Framework*),



ound Designer II, WaveFrame and

thers coming soon.

lo Matter Which DAW You Use,

ıcompatibility Won't Be Part of the

'icture. With the MMR-8 digital dubber

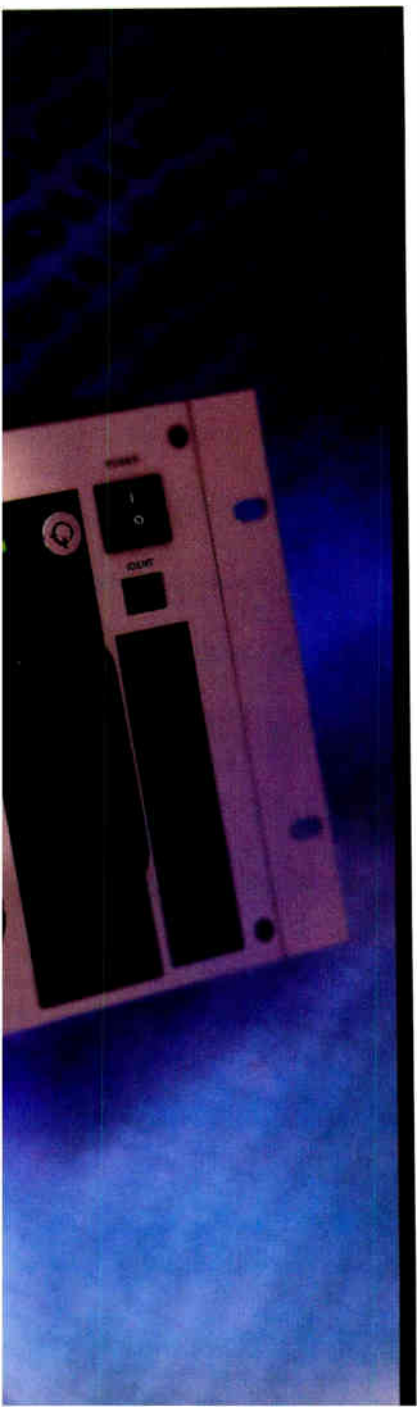
nd the MMP-16 digital player you can chain up

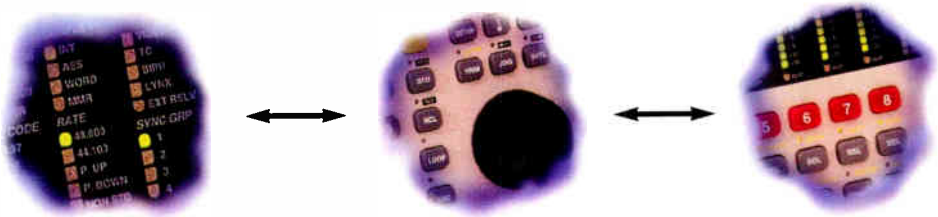
ɔ six additional SCSI drives online. This means

ou can dramatically increase your accessible

rack pool. Perhaps more important is the

1MR-8's rock-solid integrated synchronization





solution. It supports virtually every kind of sync including Biphase in and out, LTC, VITC, MMC, word clock and digital audio sync.

Scrub. Slip. Slide. And Edit. Just like mag tape, the MMR-8 and MMP-16 scrub audio in forward and reverse — while locked to film or video. Need to cut 11 seconds out of a scene? No problem. And no need to go back to the DAW. With the MMR-8 you can slip tracks independently, slip events and even slip regions within a track. You can Cut, Copy, Paste and Insert (with 10 levels of undo/redo) directly from the front panel. But if your scene calls for more complex editing, go back to your DAW with the MMR-8's Kingston™ carrier equipped drive and edit away. Bring the edited files back to the MMR-8 for dubbing and watch it mount and read them. Magic. No more transfers. Imagine the time you'll save.

Master Control With Sony P2, TimeLine Lynx or MM-RC. Use your Lynx KCU for full function control of your MMR-8 including track arming and punch-in/out of up to six units. If you're really a control freak, use the optional MM-RC remote to simultaneously control up to 100 units. That's up to 1,600 tracks with the MMP-16. All with sample accurate sync across all machines. As for sound quality, let's face it, even with the best 16-bit machines, as you open more tracks on the console you add more noise. The MMR-8 and MMP-16 give you true 24-bit resolution. This keeps the noise floor at an absolute minimum — no matter how many tracks you're running.

THE ONLY OPEN SYSTEM DESIGNED TO STAY OPEN.

Open Systems Mean Easy Integration.

Installing TASCAM's digital dubbing system is literally a plug-and-play process. The MMR-8 and MMP-16 come with analog and AES/EBU Digital I/Os that use the same standard cables as your TASCAM DA-88s. So you see, there's no reason to be closed-minded. Visit the website at **www.tascam.com**. Or call TASCAM FaxBack at 800-827-2268 for document #5080. You'll get the story on how the MMR-8 Digital Dubber and MMP-16 Digital Player will keep your platform and format options open — wide open.

TASCAM®

Take advantage of our experience.

Soundelux & Vine Street Studios

With expanding locations on both coasts, Soundelux Entertainment Group is at the forefront of the vertical integration in entertainment-based audio. Currently, the company comprises nine divisions: the editorial suites at the Oscar-winning (Best Sound Effects Editing on *Braveheart*) Soundelux-Hollywood, which just moved into 60,000 square feet next door to its old digs on Hollywood Boulevard; the theme park and restaurant-focused Soundelux Showorks in Orlando, Fla.; Signet Soundelux Studios in West Hollywood, which handles sound effects editorial, music scoring and feature film dubbing; Soundelux Media Labs; Modern Music (music supervision and editing for feature films); Soundelux Audio Tracks transfer services; The Hollywood Edge CD effects library; a books-on-tape division; and, the latest addition to the roster, Vine Street Studios, pictured on this month's cover.

BY MAUREEN DRONEY

Vine Street, with its brightly hued exterior bordered by a fanciful mural of decorative steel, has recently been honored by the Hollywood Arts Council for its in-

PHOTO: MAUREEN DRONEY

PHOTO: ED FREEMAN

Above L to R: Michael Keller, Lon Bender, Kim Waugh, Melissa Hofmann and Barney Cabral at Vine Street Studios, Stage 2.

At left, the ADR stage with Lortec console and Fairlight MFX3^{plus} workstation for direct-to-disk recording.

PHOTOS COURTESY OF UNITED ARTISTS PICTURES/ETIENNE GEORGE

"The Man in the Iron Mask"

by Maureen Droney

Period pieces always present their own special sonic challenges. But it's one thing to shoot Depression-era cars that are still available; it's quite another to re-create the pre-Industrial Revolution 17th century. MGM/United Artists' remake of *The Man in the Iron Mask*, directed by Randall Wallace and set in 1662 Paris, was filmed entirely in France. The film features a heavy-hitting cast of stars including Leonardo DiCaprio in a dual role as King Louis the XIV and the enigmatic title character. Jeremy Irons, John Malkovich and Gerard Depardieu are the Three Musketeers, and Gabriel Byrne stars as D'Artagnan.

Re-recording was done at the new Vine Street Studios in Los Angeles, where the crew included supervising sound editors Lon Bender and Kelly Oxford, dialog and music mixer Melissa Hofmann, and effects mixer Michael Keller. The schedule was, as is so common these days, tight.

"There was lots of sound coming at us," says Keller. "We had about three weeks of predubbing, eight days at the final, a screening and then two days fixing, so really about six weeks to final print master. We'd done three temp dubs, so things had been honed, and we had a pretty good idea of what we wanted to do and how to get there. They had been cutting things very wide for the temp dubs, and there were maybe a hundred channels to sort through, because, especially for a period piece, sound design might not work all the time. It's not like sci-fi or a modern effects movie, because you have to make it organic-sounding and also blend with an orchestra."

Composer Nick Glennie-Smith received high marks from the sound crew for his score, which was recorded with full orchestra in London. "A big issue we faced," says co-supervising sound editor Bender, "was that we had a considerable amount of score along with a considerable amount of action sequences, and we had to find a way to make the movie eloquent without being abrasive. Oftentimes, directors just want to push everything and just make things louder and louder, but Nick's score is such that he doesn't play the action sequences, he plays the emotion of the sequences in the action—therefore, his music is more fluid and thematic. Every character has a theme and a melody, and the interweaving of the melodies enhances the film enormously." It was also, according to Keller, the first film where he had no conflicts between effects and music.

Effects were cut at Soundelux-Hollywood on TimeLine DAW 80s, which have complete connectivity with the TimeLine digital dubbers ("sound great and lock instantly," says Keller), with backgrounds on 2-inch analog. Two Pro Tools systems fitted with Apogee converters were used for music during the final dubs—one for playback and one for music editor Laura Perl-

—CONTINUED ON PAGE SFP 8

novative restoration and has created a splash on the busy L.A. post-production scene. The actual physical complex that now houses Vine Street Studios, established in 1948 as Ryder Sound Services, was the site of several industry technical landmarks, being the first studio where electronic sound editing was performed on magnetic film stock, and also the first studio to feature magnetic recording transitioning from optical recording—an innovation that earned the facility a Technical Academy Award.

The complex now features two dubbing stages equipped with 144-input Harrison SeriesTwelve consoles, custom-designed to Soundelux specs for feature film mixing. Two new machine rooms boast TimeLine digital dubbers and both film and video projection (a dual system set to show film in forward and video in reverse). Traditional analog is also available—both 6-track and 24-track formats can be accommodated. The facility also has 12 picture editing suites with Lightworks nonlinear systems.

Both stages were built to accommodate five remote workstations to support music, sound effects and a sound supervisor station. "It's essential," comments Kim Waugh, president of Signet Soundelux and Vine Street Studios. "Each of the stages was built with the ability to handle remote workstations both on- and offstage, with panels where we can hook in up to 16-track systems with video sync and timecode feeds. You can set up left, right, behind or in front of the console, or in the producer's booth."

Waugh, himself an accomplished feature film field sound recordist with credits that include *Braveheart*, *Last of the Mohicans* and *Glory*, explains a bit about the renovation. "We did an analysis of all the stages that Soundelux projects were mixed on around town and noted what we liked and what our sound supervisors liked. Then, when we built the stages, we tried to get the best of those ideas within what we could physically achieve. I think that we got everything that we felt really mattered. Of course, there's always more you could do…

"We started construction April of '97, and the first stage came online in September," he continues, "but the renovation continued on through December, so really it took nine months. We physically stripped everything out of the facility, every piece of wire, every plug in the wall, removing literally thousands of pounds of wire."

Bill Johnston, Vine Street's chief engineer, notes, "Al-

—FROM PAGE SFP 7, "THE MAN IN THE IRON MASK"

man, who could make any necessary changes on her system then switch drives with the playback system. Print mastering was also to an MMR-8.

"It's a great system," says Hofmann. "You can take the digital medium straight out of editorial's workstation with no transfer time, plug it into our drive and just go. We also have a workstation on the stage, one of the Waveframes, so if we want to do a fix, we can just bring a drive over—plug and chug. Another advantage to the MMR-8 is that you can shift single tracks; you can advance a sound effect five minutes into another scene if you want—it's really easy and efficient."

PHOTO COURTESY OF UNITED ARTISTS PICTURES/ETIENNE GEORGE

According to Hofmann, the quiet scenes required more finesse than usual. "[Director] Randall [Wallace] wanted them very quiet," she explains. "There's a lot of sound going on in the natural world, but he didn't want to hear it. The style he wanted to go with was very sparse. But the dialog sounded too sterile, so we had to find things that are transparent, that make you feel like you were there without beating you over the head—maybe a carriage goes by, a dog barks. The production track was very good, and that helped a lot. Also, a lot of the time we're in the castle or other big, echoing spaces, so we could spread things out in the stereo imaging. We could use large reverbs and have dialog that fills the space."

Keller notes other difficulties. "Every room has a fire. That's fine if you can see it, but if you don't, the sound effect just sounds like crackling in the dialog. There's a fine line with how you play the levels, how you fade it in. Also, we had lots of horses on cobblestones, very clicky—20 horses in an alley calls for a thunderous sound, but they really didn't make it, so we had to pitch shift to add the thunder. We used a PCM 80 with the pitch shift card—it's the best we've found.

"Then, it's a costume film—huge costumes, big cloth. If the actors move their heads, it's very noisy, very hard to filter," he continues. "We had to match the cloth movement. In certain scenes, we had multiple tracks of cloth movement just to try to match the different textures of, say, a hundred people moving around during a ballroom dance scene. The Harrison SeriesTwelve consoles we were working on have selectable 5-, 6- or 8-track panners, and they are automated. So, for example, when you're in the dance and people are moving around, we can pan all these cloth movements. Pretty much all the Foley ended up being panned to make it nice and wide. We were very fortunate that the Foley was so good. Sometimes you get Foley and you have to play it low because it sticks out, but we played it very loud to give scenes more movement and sometimes even dropped production footsteps to use the Foley footsteps because they sounded heavier and had a better surface sound. The Foley also came in all digitally, recorded to a Fairlight, edited in the Waveframe and brought over on drives."

"This was a great film to work on," says Hofmann. "For one thing, it's just beautifully shot. And working with Randall Wallace was wonderful. He's totally open-minded."

"[Randall] really knows how to collaborate with the artistic people that are part of his staff," agrees Bender. "Collaborate is a word we use all the time in Hollywood, but in reality it is something that doesn't often happen. The sound for this picture was a very strong collaborative effort." ■

Maureen Droney is Mix's Los Angeles editor.

AMS Neve
Digital Film Consoles

A new generation of digital release formats requires a new generation of film dubbing consoles.

AMS Neve's digital dubbing consoles are setting new standards in quality and creativity at leading facilities worldwide.

USA

Buena Vista Sound, *Burbank*
Digital Cinema, *New York*
Lucasfilm Digital, *San Rafael*
Photomagnetic Sound, *New York*
The Magnolia Studios, *Burbank*
Todd-AO, *Hollywood*
Warner Bros, *Burbank*

UK

Boom Studios, *London*
Broadcast Film & Video Services, *Bristol*
dB Post, *London*
De Lane Lea, *London*
GDO, *London*
Pinewood Studios, *Iver*
Videosonics CinemaSound, *London*

Europe

Cineberti, *Belgium*
Europa Studios, *Sweden*
Exa, *Spain*
Filmtel, *Spain*
GLPIPA, *France*
The Icelandic Film Corporation
Jackson Studios, *France*
Nordisk Film, *Denmark*
Sonodi, *France*
Soundtrack, *Spain*
Studio Hamburg, *Germany*
Tremens Film, *Austria*

India

Gaurav Digital, *India*

Warner Bros, Burbank – Stage 3

Warner Bros, Burbank – Stage 4

Digital First

AMS NEVE

HEAD OFFICE – AMS Neve plc · Billington Road · Burnley · Lancs BB11 5UB · England · Tel: +44 (0) 1282 457011
Fax: +44 (0) 1282 417282 · *LONDON* – Tel: 0171 916 2828 · Fax: 0171 916 2827
GERMANY – Tel: 61 31 9 42 520 · Fax: 61 31 9 42 5210 · *NEW YORK* – Tel: (212) 949 2324 · Fax: (212) 450 7339
HOLLYWOOD – Tel: (818) 753 8789 · Fax: (818) 623 4839 · *TORONTO* – Tel: (416) 365 3363 · Fax: (416) 365 1044
e-mail: enquiry@ams-neve.com – http://www.ams-neve.com

CIRCLE #067 ON PRODUCT INFO CARD

though by the time we took over it had fallen on hard times, the downstairs stage (now Stage 3) was known for excellent sound. It was well-designed originally by Jeff Cooper, with a THX wall that had been built correctly even before THX was a standard. Therefore, when we rebuilt the room, we went to great pains to duplicate what was there. For example, we put carpet where it was previously—even on the back walls, which I usually don't like to carpet—because we didn't want to change the basic quality of the sound. We did make improvements, adding diffusers and continuing with what Jeff Cooper had done."

Studio 2, upstairs, was a different issue. It had been built in 1978 and was not an acoustical masterpiece. "We spent nine weeks doing an acoustical build-out," continues Johnston, "among other things, adding a layer of plywood to stiffen up the walls. Then we had Jeff completely acoustically redesign the rooms. He went with horizontal diffusers in a triangular pattern instead of the usual vertical diffusers; that's made an immense difference."

Riding the crest of the current trend, all dubbing from opening day on Stage 2 has been on TimeLine MMR-8 digital dubbers. "Version 2 of the software has the ability to read both WaveFrame and Pro Tools files," explains Waugh, "as well as to record in both formats. It also records in 16- or 24-bit modes, slips tracks and moves events within tracks. One of the biggest areas we were concerned about was the synergy between the mix stage and editorial; we now have complete connectivity without transferring medium—we are plug-and-play. Of course, we also have DA-88 backup for source material, Otari 24-track analog machines, Sony 3348 digital multitracks and a full traditional analog 6-track 35mm chain."

Although materials can be tied from one room to another, each stage has its own machine room, and the downstairs Stage 3 carries an even larger film chain: 22 film dubbers and additional 2-inch machines.

Also in the complex are an ADR stage (Lartec console, Fairlight MFX3plus, MMR-8, DA-88, analog 24-track) and a Foley stage. The Foley control room was rebuilt as part of the renovation and now features a Neotek console and recording on MMR-8 or Fairlight. The stage is set four feet below the control room and boasts 17 different surfaces and hundreds of props. The mic collection is also impressive. "We use interesting mics," notes Waugh. "For example, B&K mics with a stereo SASS mount made by Crown. We originally purchased the mounts for effects recording—they give a very smooth, wide stereo imaging. Combined with the very flat response of the B&Ks, we get an extremely accurate, articulate sound. We also use Neumann mics, Sennheisers, various tubes and, of course, the Soundelux tube and FET."

The Vine Street Foley team of mixer David Alstadter and artists Jimmy Moriana and Katherine Harper are industry "A" list, with credits that include *Titanic*, *Fifth Element*, *Flubber* and *The Man in the Iron Mask*.

"We're at the point where we are running two shifts on our Foley stage," observes Waugh. "It's all part of the kind of packaging we're doing. That's what was happening at Signet-Soundelux before we decided to expand into this facility. We were putting together packages and realized that we needed a larger stage. Because in this industry now, everybody wants an all-in package. Even the largest features we work on now ask us if we can package it all. Gone are the days of a la carte—that may continue when there's an open checkbook, but there are much fewer of those projects than there were ten years ago."

Stage 2 is often home to the mixing team of Melissa Hofmann (*Eight Heads in a Duffel Bag*, *Love! Valour! Compassion!*) and Michael Keller (1997's director's cut of *Das Boot*, *City of Industry*), currently working on *The Man in the Iron Mask* (see sidebar). And Patrick Cyccone (*Stargate*, and the upcoming *The Mighty*) can often be found ensconced on Stage 3. But Waugh and Soundelux founder/co-chairman Lon Bender emphasize that Vine Street Studios was not built solely for Soundelux projects.

"We wanted to make a creative environment where anyone would be able to come to work—we're very sensitive to that," says Bender, whose supervising credits include *Braveheart*. "We made a conscious effort to create a special kind of artistic environment, where, in addition to technical excellence, we've paid attention to creature comforts in a way that's a little bit different. For example, you'll notice there's fine art on the walls instead of movie posters. The goal of Vine Street Studios is to be innovative, comfortable and leading-edge, and to provide mixing services for the entire sound community." ■

Dolby has the production tools for DVD and DTV audio.

Dolby Digital is the audio standard for DVD worldwide and for DTV in the U.S. So who better to turn to than Dolby for the production tools you'll need?

We have 5.1-channel and two-channel Dolby Digital encoders, and 5.1-channel decoders–plus Dolby Surround matrix encoders to deliver multichannel sound via any two-channel system to more than 31 million Dolby Surround home playback systems.

For more information, including the name of your nearest Dolby authorized dealer or distributor, contact Dolby Laboratories.

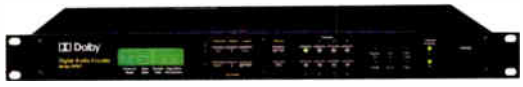
Dolby Digital Facts & Figures*

- 3 million consumer products with Dolby Digital decoding sold already.
- 25 decoder ICs approved, with more than 80 additional solutions under development.
- More than 600 DVDs and 300 LDs with Dolby Digital soundtracks released or announced.
- 1,250 theatrical films with Dolby Digital soundtracks released or announced.

*Statistics as of March 1, 1998

DOLBY DIGITAL ENCODERS AND DECODERS

DP561B Dolby Digital 5.1-Channel Encoder



DP567 Dolby Digital Two-channel Encoder

DP562 Dolby Digital 5.1-channel Decoder

DOLBY SURROUND ENCODERS AND DECODERS

Dolby Surround Tools TDM Plug-Ins

Dolby SEU4 Surround Encoder

Dolby SDU4 Surround Decoder

Come see us at NAB:
LVCC Main Hall Booth 9638 and Sands Convention Center Booth RS3738

Dolby Laboratories Inc.
100 Potrero Avenue, San Francisco, CA 94103-4813 Telephone 415-558-0200 Fax 415-863-1373
Wootton Bassett Wiltshire SN4 8QJ England Telephone (44) 1793-842100 Fax (44) 1793-842101 www.dolby.com

Dolby®

CIRCLE #069 ON PRODUCT INFO CARD

THE SEARCH FOR ORDER IN SOUND & PICTURE

WALTER

When Walter Murch walked to the stage of the Shrine Auditorium in March 1997 and accepted his second Oscar of the evening for *The English Patient*, most of the billion people watching, even the ardent film fans, probably asked themselves, "Who is this man, and why haven't I heard of him before?" Good questions. He is not a household name, as are his peers and fellow Hollywood emigres Francis Coppola and George Lucas. But his was the rarest double in 69 years of the Academy Awards—Film Editing and Best Sound—and his contribution to the success of that film, and to many others, cannot be overstated.

MURCH

Among producers and directors he has worked with, Murch is a co-conspirator—a friend who speaks the language of film and inspires confidence at every level of the filmmaking process, from dailies to final release. When he's standing at the Avid, the intensity of the frame is captured in his eyes. When he walks into a dub stage, his soft-spoken, gentle manner permeates the room and lends a sense of calm, a sense that everything will come out all right.

In many ways, his dual role as picture editor and re-recording mixer makes him an informal "director" of post-production. Nobody working today in post-production for major films can claim such an influence on the final product. Murch, in his typical humble, understated style, looks around and wonders why nobody else does it this way; it's just how he's worked since moving north to the San Francisco Bay Area in 1969 to join Coppola and Lucas in the formation of American Zoetrope (nee TransAmerica Sprocket Works) and the production of *The Rainpeople*.

The Rainpeople turned out to have a profound influence on the formation of a Bay Area film industry. Coppola had financing from Warner Bros., and Lucas was fresh off a Warner Bros. scholarship but was disenchanted, as many were, with the Hollywood decline of the mid-1960s. Coppola shot the film on a cross-country jaunt from New York to Nebraska, ending up in a storefront in Oglala for the last six weeks of filming. (Lucas lensed a "making of" documentary along the way.) The film was then edited in Los Angeles and brought to American Zoetrope for the mix.

"George and I had been finalists for the Warner Bros. scholarship in 1967," Murch recalls. "We were going in for our last interview, and we knew that one of us would make it and one of us would not. So we made kind of a blood pact that the one who got it—if something interesting happened as a result—would turn around and help the other guy. George got it, went to Warner Bros. and met Francis Coppola, who was the only other person with a beard making a film on the lot at the time. So Francis and George paired up, and Francis was as aware as anyone of this gradual decline in Hollywood and wanted to make films in a new way—an American version of the European way—so he wrote, got financing, and then directed a film called *The Rainpeople*, starring Shirley Knight and James Caan.

BY TOM KENNY

PHOTO BY STEVE JENNINGS

"At the end of shooting, George and Francis looked at each other and realized they had shot this feature film operating out of an old shoe store on the main street of Oglala, and if they could do that, there didn't seem to be any reason they needed to be in Hollywood," he continues. "So they drove from Nebraska back to Los Angeles via San Francisco. While here, they met John Korty, who was making independent films out of Stinson Beach [Marin County], and they thought, 'Well, if he can do it, we can do it.' Shortly after that, I got a call from George saying, 'Do you want to move up north to San Francisco?' So the three of us—George, Francis and myself—and our wives and families loaded up a truck with all this equipment and moved to San Francisco. Actually, it was my wife, Aggie, who drove the truck, while I slept in the passenger seat with our eight-month-old son, exhausted from preparing the tracks for the upcoming mix of *The Rainpeople*."

Murch went on to co-write, sound edit and mix *THX-1138* with Lucas, then supervise the sound editing for *The Godfather* for Coppola, then mix *American Graffiti* with Lucas, followed by *The Conversation*, *Godfather II*, *Julia* and *Apocalypse Now* (for which he also won an Oscar for Best Sound). He has directed and co-written a film, *Return to Oz*, and has assisted on scripts including *The Black Stallion*. After 30 years in the business, his filmography (see sidebar) is not long, but the films he has worked on have had a profound influence on the shape of American cinema.

Mix sat down with Murch in early January, in the screening theater at the Saul Zaentz Film Center in Berkeley, Calif., as he was preparing to view a friend's film. Despite his pioneering work in the use of automation and nonlinear editing, the conversation had very little to do with technology. His is a mind that centers on art, creativity and the workings of the human brain. In a sense, his lifelong mission has been to find order amid chaos.

Let's begin with a cliché question. What was your first experience with film that had an influence?

Well, the first thing that struck me forcefully was the invention of the tape recorder and its dissemination as a consumer item, which started to take place in the early '50s. The father of a friend of mine owned one, so I wound up

COURTESY MIRAMAX FILMS/PHIL BRAY

COURTESY UNITED ARTISTS CORP

WALTER MURCH FILMOGRAPHY

The Rainpeople (1969, dir. Francis Coppola). Sound montage, re-recording mixer
THX-1138 (1971, dir. George Lucas). Co-screenwriter, film editor, sound montage, re-recording mixer
The Godfather (1972, dir. Francis Coppola). Supervising sound editor
American Graffiti (1973, dir. George Lucas). Sound montage and re-recording
The Godfather, Part II (1974, dir. Francis Coppola). Sound montage and re-recording
The Conversation (1974, dir. Francis Coppola). Film editor, sound montage, re-recording . Double winner at British Academy Awards, American Academy Award nomination for Best Sound
Julia (1977, dir. Fred Zinneman). Film editor. American, British Academy Award nominations
The Black Stallion (1979, dir. Carroll Ballard). Uncredited screenplay collaboration
Apocalypse Now (1979, dir. Francis Coppola). Film editor, re-recording mixer. American, British Academy Award nominations for film editing and Best Sound. Oscar for Best Sound
The Right Stuff (1983, dir. Philip Kaufman). Documentary research and assembly
Return to Oz (1985, dir. Walter Murch). Co-screenwriter, director
The Unbearable Lightness of Being (1988, dir. Philip Kaufman). Film editor
Ghost (1990, dir. Jerry Zucker). Film editor (Academy Award nomination), re-recording mixer
The Godfather, Part III (1990, dir. Francis Coppola). Film editor (Academy Award nomination), re-recording mixer
The Godfather Trilogy (1991, dir. Francis Coppola). Editor
House of Cards (1992, dir. Michael Lessac). Film editor, re-recording mixer
Romeo Is Bleeding (1994, dir. Peter Medak). Film editor, re-recording mixer
Crumb (1994, dir. Terry Zweigoff). Re-recording mixer
First Knight (1995, dir. Jerry Zucker). Film editor, re-recording mixer
The English Patient (1996, dir. Anthony Minghella). Film editor, re-recording mixer. Academy Awards for Film Editing, Best Sound. British Academy Award for Film Editing
Touch of Evil (1958, dir. Orson Welles). 1998 Editorial reconstruction and sound montages based on memos written by Welles. ■

Introducing Finalizer™ *Plus*

Improving on the Multi-Award winning Finalizer platform, the Finalizer *Plus* delivers an unprecedented level of clarity, warmth and **punch** to your mix.

With an all new set of advanced features and enhancements, Finalizer *Plus* puts the world of professional mastering within reach of every studio - large or small.

Inserted between the stereo output of your mixer or workstation and your master recording media, the Finalizer *Plus* dramatically **rounds** out your material, creating that **"radio ready"** sound - previously unattainable outside a professional mastering house.

Finalizer **PLUS**
STUDIO MASTERING PROCESSOR

TO CURRENT FINALIZER OWNERS
UPGRADE AVAILABLE NOW!

NEW features

- 24 bit resolution A/D & D/A converters
- Real Time Sample Rate converter
- Industry standard connectivity - AES/EBU, S/PDIF, Tos-Link and ADAT® I/O's
- Word Clock Input
- Dynamic Filtering
- External Insert. Simultaneous Inserts
- MS Encoder/Decoder

The Finalizer Digital Master Fader

The Finalizer knocks out the industry heavyweights:

"TC Electronic has come up with a winner by packing tremendous flexibility into this unit. The Finalizer contains all the latest thinking in dynamics control and it is easy to use."

Bernie Grundman
Bernie Grundman Mastering
Six Time TEC Award Winner

"The Finalizer is capable of producing first-rate professional results. There's a lot of "bang for the buck" in this single rackspace mastering tool."

Bob Ludwig
Gateway Mastering Studios
Seven Time TEC Award Winner

OTHER features

- Multiband Compressor
- Five band 24 bit Parametric Equalizer
- De-Esser, Stereo Adjust & Digital Radiance Generator
- Real Time Gain Maximizer
- Variable Slope Multiband Expander
- Variable Ceiling Limiter

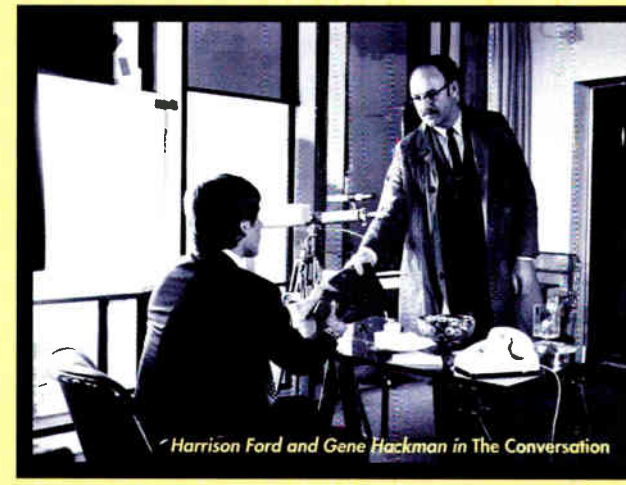
t.c. electronic
ULTIMATE SOUND MACHINES

TC ELECTRONIC INC., 790-H HAMPSHIRE ROAD, WESTLAKE VILLAGE, CA 91361, USA · PHONE: (805) 373 1828 · FAX: (805) 379 2648
FOR LITERATURE CALL TOLL-FREE: 800 283 7925 E-MAIL: INFOUS@TCELECTRONIC.COM · HTTP://WWW.TCELECTRONIC.COM/FINALIZER
TC ELECTRONIC A/S, SINDALSVEJ 34, DK-8240 RISSKOV, DENMARK · PHONE: + 45 8621 7599 · FAX: + 45 8621 7598

CIRCLE #070 ON PRODUCT INFO CARD

"THE CONVERSATION"

Walter Murch began working on The Conversation *in the fall of 1972, and when it was released in the spring of 1974, it woke many people up to the power of sound in film—and not just because the main character was a sound recordist. We asked Murch to make sense of the impact of that film.*



Harrison Ford and Gene Hackman in The Conversation

COURTESY PARAMOUNT PICTURES CORP.

It's a film that has an intensely single point of view. Everything in the film is seen or experienced by Harry Caul [Gene Hackman]. You know he's a soundman, and the film never lets you off the hook, so after a while, you just begin to accept the fact that you, too, are a soundman and you, too, should consider that sound is important.

It interested me when the film came out and people started saying, "Boy, wonderful sound." I liked the sound, but I felt was no different in approach to work I'd done on other films. I eventually traced it back, not surprisingly, to this subjectivity factor, but also the fact that halfway through the film, people stop talking. There really is no dialog in the normal sense past the halfway point of the film. There are exclamations occasionally: "Hey, stop!" or, "We know what you're doing, Mr. Caul." Then, of course, the tape of the conversation is played over and over again, accompanied by the natural sounds of the world through which Harry Caul is moving. And I think the human mind is constituted such that when dialog is present, it's like having the full moon in the sky at night. You know the stars are there, but you don't really think about them as much because of the moon. On moonless nights, these smaller lights begin to acquire a fascination and an interest for you that they don't have when the moon is present. So when dialog is absent, and when the human mind is consequently not busy decoding language, it relaxes, and without knowing it, it says, in effect, "Hmm, where am I going to find meaning now that there is no dialog? I have to look for it at some other level." Well, the mind will find it at the level of sound effects because we put meaning there, in the sounds we chose and how we treated them. In other films, that meaning is still there, but the mind is blinded by the presence of dialog. It doesn't mean the sound effects aren't having their effect though, it's just that it is a more subconscious effect. ■

going over to his house endlessly, playing with this recorder. And that passion, which was a kind of delirious drunkenness with what the tape recorder could do—that it could capture an aspect of reality and instantly play that reality back, and that you could then reorder that reality by transposition, and that you could even do layerings of sound—was just intoxicating, and it occupied nearly the whole first half of my teenage years. So, my entry into the world of film is really through sound rather than image.

The moment that the whole idea of filmmaking hit me was when I was 15 and went to see *The Seventh Seal* [by Swedish director Ingmar Bergman]. I'd seen lots of movies before that, of course—the average number of films a kid growing up in New York City would see. But *The Seventh Seal* was the film where I suddenly understood the concept that *somebody made this film*, and that there was a series of decisions that could have been different if someone else had made the film. I really got a sense of a single person's interest and passions through watching that film, which in fact was true. This was Ingmar Bergman, after all.

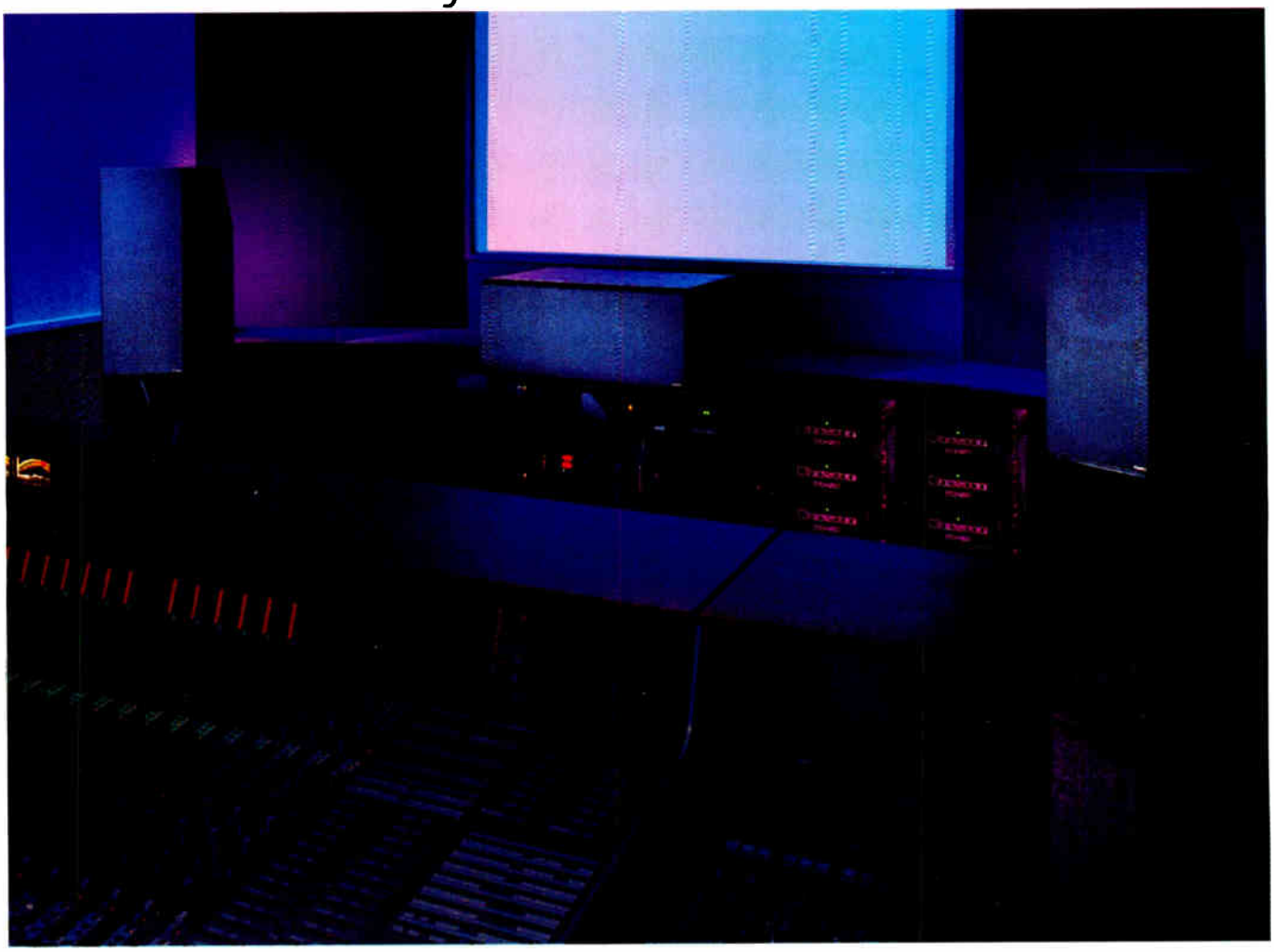
Then I became interested in architecture and oceanography and art history and French literature, and those were the things I mainly pursued as an undergraduate. It was only later on in my college years that I started to get interested and see the actual possibilities of working in film, which was largely through having spent my junior year in Paris in 1963. This was when the New Wave, the Godard&Truffaut style of filmmaking was at its peak. I came back buzzing with the idea of film, and then I found out that there were actually schools that you could go to to study film—graduate schools in film, which I found incredible. I applied to a number of them, and I got a scholarship at USC. Strangely enough, it was only when I got to school that I discovered the fact that films needed sound, and that somebody had to record it, and then you had to "cook it," in a sense, in post-production. And I saw immediately that this was exactly what I had been doing ten years earlier.

You occupy a rare position of being a film editor and re-recording mixer. How does your involvement with the picture influence the final soundtrack?

Well, it goes very deep with me. I've been doing this professionally since *The Conversation*, which we started shooting in 1972. But I was doing it previously in film school. It's a combination that appealed to me and appeared to be a natural thing to do at the time, and I've now been doing it so long that it seems second nature to me.

An illustration of one aspect of my approach is that when I'm first putting the images together—creating the first assembly of a film—I turn off all the sound, even for dialog scenes. What that does is focus me more intently on the vi-

PMC and Bryston — The Final Mix



"I am completely blown away with our PMC/Bryston surround system."

James C. Hodson, Advantage Audio, Burbank, CA

The fusion of PMC loudspeakers and Bryston amplifiers delivers unprecedented accuracy in professional sound systems. Designed to offer exceptional low-frequency extension, low coloration, neutral yet dynamic performance, balance at all levels and high SPLs without distortion or compression; PMC/Bryston surround systems excel in translating with exactness, what is actually happening at the microphone and in the mix. For more information on the PMC/Bryston professional sound systems contact us today. **1-800-632-8217 or www.bryston.ca**

PMC and BRYSTON

The fusion of art and science.

CIRCLE #071 ON PRODUCT INFO CARD

LASTING IMPRESSIONS

Mix asked Walter Murch to participate in a film sound version of call-and-response, where we name the film and he says what he remembers from an audio point of view.

The Rainpeople
My virgin film. It was the first film that I did sound on, and I did everything—recording, transferring, cutting, mixing. It was a one-man band. Many of the lessons that I was to learn later are present in that film embryonically.

The Godfather
My first "Hollywood" film. Taking my personal way of doing things into an industrial environment. The expressionistic use of sound, but integrating it into the reality of the visual.

Godfather II
Sheer size. Three hours and 20 minutes. A very broad palette. Lots of dynamics.

American Graffiti
Theme and variation of world reverberence. The challenge of having almost two hours of continuous music in the background but making it seem to ebb and flow dramatically with the scenes.

The Conversation
Clarity and density. The first film where I also edited picture.

Apocalypse Now
Density and clarity. My first film in stereo. Striving for authenticity in both the exterior sounds of that war and the interior state of mind of the participants.

Crumb
Simplicity.

The English Patient
Sound as an emotional guide-track through the complexities of story. ■


Al Pacino in The Godfather

suals, because I'm reading them the way a deaf person does—I have to extract meaning, greater meaning, out of them because of a sensory deprivation. But also, paradoxically, I pay more attention to the sound because, although I've turned the speaker off, I'm still "hearing" sound; it's just that I'm hearing the sound in my imagination, the way it might finally be. I'm lip reading the dialog, imagining the music, imagining sound effects, I'm imagining all these other things that, were I to turn the bare production track back on, would all disappear, kind of like fairies frightened away by the voice of an ogre. So, at the very first moment that the film is acquiring its shape, it's already welcoming the influence of the final soundtrack.

It's interesting that when I watched you working on The English Patient, ***you said you prefer to mix to a slightly degraded image because you're going to "fill in" with sound later, which is almost the reverse of what you're saying.***

You're right; it's exactly the opposite of how I begin the process. When you look at a sharp color image, the amount of detail in that image is so great that you really don't need very much sound to complete it, to fill up your perceptual breadbasket, so to speak. So by showing a black-and-white image, or by showing a video color image, or even the digitized Avid output, the image tells you that it's not complete. As a result, you pay more attention to the sound. Because the image is degraded, you tend to demand more of the sound. There's a nice symmetry to that process.

On the other hand, all the months I'm editing picture I'm adding sound little by little. I start out with the sound off—which gives this empty "imaginative" space for sound to move into. It's just the sound in my head at the beginning. Then I add the dialog, then later on key sound effects, and then eventually temp music and then finally the rough versions of the final music. And, of course, you can do mixes on the Avid: You can mix up to eight tracks as you cut the picture. Once you start to actually add the sound and music, it changes how you look at the picture, and the two become synergistically involved.

In In the Blink of an Eye, ***your book on film editing, you place a high importance on emotion. Can you talk to me a bit about the emotion of sound?***

I think the image of the eyes facing forward and the ears facing sideways is metaphorically indicative of how we confront visual reality as opposed to aural reality. The visual seems to be direct and confrontational: You look at what's in front of you, and what's in front is seen and apprehended with a measure of intellect and emotion. And it's seen all at once, in a single grasp—let's call that the front door. The visual material knocks on the front door, and when somebody knocks on the front door, you sort of adjust your clothing, go to the door, take a deep breath, say, "Who's there?" and open the door. Whatever meeting occurs will have an element of formality to it, because it's somebody who came to the front door.

Sound tends to come in the back door, or sometimes even sneak in through the windows or through the floorboards. Remember, the ears point out the side of your head and take in a 360-degree spherical field. And while you're busy answering the front door, sound is sneaking in the back door. It's in the house as much as anyone who came in through the front door, but you're not as aware of it, and so its presence is more of a conditional presence—it tends to condition the things you are consciously aware of. The strange thing is that you take the emotional treatment that sound is giving, and you allow that to actually change how you see the image: You see a different image when it has been emotionally conditioned by the sound. So sometimes you will swear that you actually saw something that never, ever happened on the screen or in the soundtrack, but is the unique combination of the two inside your head.

Also, for some reason that I don't fully understand, I am very emotionally moved by the space around a sound. I almost think that sometimes I am recording space with a sound in it, rather than sound in a space.

Your book also promotes the idea of restraint. Gary Rydstrom on Titanic ***said he wouldn't know what to do with 100 faders of effects. Could you speak to me about restraint and the number of tracks?***

The thing, on a practical level, that terrifies somebody who works in sound is

Exploring new territory? Better bring a guide who knows the terrain.

EAW KNOWS THREE-WAY

Two-way? Three-way? What's a "way?"

Now that THX® has approved three-way loudspeakers, they represent cinema exhibition's new frontier. And along with greatly improved sound quality, they're bringing lots of questions.

"Can I retrofit my existing theaters? Will I need more amplifiers? Will I need more crossovers? Do I need new surrounds?"

We've been working with exhibitors for nearly two years adapting three-way technology to the cinema environment. So we know the questions that need to be answered.

CB523 MC4973* CB150

In fact, three-way design is "the EAW way." It was a primary design philosophy when we founded the company nearly twenty years ago. And today we're the world leader in professional three-way loudspeakers supplying stadiums, concert halls, nightclubs and venues of all types around the world.

1978 20 1998

If you have questions about three-way loudspeakers, visit our website (www.eaw.com) to request a copy of the EAW Cinema Systems Product Guide and System Selector CD-ROM. And get the answers you need.

EAW
EASTERN ACOUSTIC WORKS

The Laws of Physics / The Art of Listening

THX is a registered trademark of Lucasfilm Ltd.
*MC4973 is THX-approved.

CIRCLE #072 ON PRODUCT INFO CARD

One Main Street, Whitinsville, MA 01568 tel--800 992 5013--508 234 6158 fax--508 234 8251 web--http://www.eaw.com
World Radio EUROPE EAW International Ltd., tel--+44 1494 539090 fax--+44 1494 539091

to be in the mix and for the director to say, "Let's eliminate everything except the dog collar." "Uh, we didn't do the dog collar." "Why not? Why didn't you do it?" "Well, because there's a big fight with garbage cans going on over there, and we thought nobody would ever hear the dog collar." "Well, dammit, who are you to say...?" So, the dog collar goes in "just in case," and you multiply that by a hundred and all of a sudden you have a hundred tracks. That's not the way I work. I willingly accept the risk of being humiliated because I don't have the dog collar—for the speed and conceptual clarity of going for the jugular. Now, if the director sees it and overrules it, that's the director's prerogative.

Having all these tracks is the equivalent of a director of photography going in with a thousand lights for a single set thinking, "Hmm, the director might want flat light; on the other hand, he might want bright key light from the left, but then maybe bright key light from the right, and if we do that we need inkies for the eyes, and we need a wash back there," and all of a sudden you've lit the scene seven or eight different ways. You'd never shoot a film that way! But, strangely, sound is done that way. There's often a tremendous amount of overkill because we don't know what's gonna be asked for.

Let's cover it in effects, let's cover it in Foley...

Right. And that was the Zoetrope dream at the beginning—the whole concept of what turned into the sound designer in the Zoetrope sense—which is a director of photography for sound. Somebody who took on the responsibility of "auralizing" the sound for the film and making definitive, creative decisions about it. Someone the director can talk to about the total sound of the film the way he talks to the cameraman about the look of the film. If you could establish this dialog and encourage directors to have a sense of sound that was as acute as their sense of picture, particularly at the script level, a lot of these multiple-track overkill problems would go away.

Yet you have the real luxury of being involved early, whereas the supervisor down in Hollywood is not getting that communication.

That's the other benefit of also being an editor—I have months and months to experiment and show things to the director and talk about sound. My heart aches for people who work the other way because they have to start from a

COURTESY WARNER BROS. SEVEN ARTS, INC.

James Caan and Shirley Knight in **The Rainpeople**

dead stop. They have to come up to speed not having really any idea of what is going to happen. And the bad thing that happens is everything gets put in and, as a result, you get a logjam of sound at the mix that frequently results in a kind of conceptual muddiness: all those dog collars. And this I think is related to some general criticisms of films being too loud. Because it is so dense, the ear can't make any sense out of it, so the director asks to increase the level. The mixers make it louder, and you quickly arrive at the threshold at which you can endure it, hoping for some kind of clarity to emerge from the loudness. But it's the clarity of the mallet on the head, and what an audience hears is noise. Because it's conceptually muddy, they can't begin to separate out what they're supposed to hear. And when they don't know what they're supposed to hear, their threshold of where loudness begins is much lower.

There is a rule of thumb I use which is never to give the audience more than two-and-a-half things to think about aurally at any one moment. Now, those moments can shift very quickly, but if you take a five-second section of sound and feed the audience more than two-and-a-half conceptual lines at the same time, they can't really separate them out. There's just no way to do it, and everything becomes self-canceling. As a result, they become annoyed with the sound and it appears "loud" even at lower levels. However, if they "understand" the sound, they can easily take 105 decibels, 110 decibels. But I don't even like to go that high; at the loudest points, I prefer to limit things to just nipping over 100 at most on a digital track. Dolby SR, with a maximum of 97, is just fine with me.

How do peaks and valleys—a phrase I

bear often—fit into this?

If there are no valleys, then it doesn't matter how high the mountains actually are; they won't *seem* high. In every film, I try to find two or three places—and I often like them to be paradoxical places—where you can get absolute quiet, or as close to absolute quiet as possible. A good example of that is the Do Lung Bridge sequence in *Apocalypse*, where the character named Roach is brought over to kill a sniper. You can see all these explosions going on in the background, but gradually over the three or four minutes leading up to this moment, we've been taking the sound out. So that creates a valley, and it's interesting to me because you're in the middle of a battle, so how can there be a valley? My rationale is that we have evoked out of the darkness this human bat. A man whose hearing is so acute that he can echo-locate a voice to within a foot or two, and that's his skill so he doesn't even need to see. He can tell exactly and shoot the grenade right at that place and blow the person up, which is in fact what happens. At that moment, you are hearing the world the way Roach hears it: just the voice in the darkness. The other quiet moments in the film are just before the the tiger jumps out of the jungle, and the approach to the Kurtz compound.

You can barely even hear the water on the boat.

The best sound is the sound inside somebody's head. What does it take to trigger that? That's the key to it all because those sounds will be unique to each person in the audience. They'll naturally be the most personal and the most high-fidelity of all the sounds.

What is the relationship between creativity and technology?

People eat with knives and forks, they eat with chopsticks, and they eat with their hands. The real goal is getting the food into the mouth. Balzac wrote 80 great novels in 20 years with a quill pen. So from a certain aspect, technology is irrelevant. What is always relevant is what you want to say. If you have something to say, you will find a method irrespective of the technology. But I have to say there is a real excitement and surge of exploration that comes from an emerging technology which now makes easy something that you have been straining to accomplish. The "wow" factor.

In the early days, I was very interested in echo, in reverberant fields, but I couldn't get what I wanted out of the spring-loaded machines that were all we could afford. They just gave out a kind of metallic twang. So I would take the sounds that we had, the voices or the sound effects, put them in their cut form, transfer them onto a Nagra, and then take that Nagra out into an actual environment acoustically similar to what was in the movie. Then I would take another Nagra and turn both on at the same time and record from one to the other through the air. I would then take this new track and put it in sync with the original tracks. Then in the mix I would judiciously blend the two together. [Murch has referred to this process previously as "worldizing."]

I don't do that so much anymore. The digital technology is such that it's now better, certainly easier, than I can do manually. So in that sense, digital caught up with my ambitions and in some cases exceeded it. And more and more research is going on into this area. What I would like to be able to do is to go into an actual environment with a square-wave generator and "snap" that environment, record the snap and use the recording of that snap to create an algorithm in the digital processor to now re-create that sonic environment. Right now, we do it by taste and trial and error. We think, "Well, this room is kind

of like a bathroom, but it's got some fabric, so let's start with a bathroom and reduce the high-frequency reverberation. Let's emphasize a peak at around 200 cycles, let's slightly reduce the decay time because of the fabric but add some kind of metallic spike somewhere because of the ceilings and the porcelain fixtures." Now you just twiddle dials until something feels right.

Over the course of your more than 30 years of filmmaking, what technical developments have had the most impact on the film mix or the film's sound?

Apocalypse Now in 1979 was the industry's first multitrack, automated mix. I think Dick Vorisek at Reeves Soundcraft was using automation in New York earlier for mono films, but this was the first automated multitrack mix. We had a tremendous amount of material for that film, so automation had a huge impact. Also, ten years earlier, the innovation of rock-and-roll (punch-in) recording, where you didn't have to do entire reels in one take. *The Rainpeople* had punch-in, but my experiences mixing before that had all been "one-take" mixes. Dolby—a huge influence in generally making stereo and "magnetic quality" sound easily available to us in theaters.

COURTESY WARNER BROS., INC.

The use of 24-track recorders synched to the film image. And now digital workstations that can feed the sound directly to the stage. And the Avid, with its facility to mix eight tracks as you edit the picture. It's amazing to think that I started before any of these things.

Automated boards were supposed to speed up everything, weren't they?

Automated boards, digital editing, use of the Nagra rather than magnetic film recorders, the use of "punch-in" re-recording—all of these things are initially sold on the basis of saving time because that's how these things have to be marketed. Somebody's going to be paying a lot a money for new technology and they have to have a reason to do it. Well, saving time is fine in theory, but in practice it usually doesn't work that way. What all these innovations do give you, though, is the ability to do more in the time available, and to defer critical decisions until a later point. If you're not careful about it, though, that deferment can precipitate a crisis because having too many deferred decisions is like not paying your taxes for ten years. Suddenly, the IRS is after you, and now you really have to pay up with a penalty. The dangers in deferring too many decisions come either because the decisions never get made—and in that case you just get this big "ball of noise" effect—or you have to make difficult and painful decisions that are the creative equivalent of being audited.

What about the digital release formats? You mixed 6-channel 70mm for* Apocalypse*, correct?

There are differences between 70mm magnetic, Dolby Digital, DTS and SDDS, but they are primarily in the delivery systems. Creatively, the differences are minute, relatively speaking,


AUGAN
Cantus
sascom
LAFONT
TL Audio
Nexus
OmniSound
SPENDOR
SEE US AT NAB BOOTH #RS3848
CIRCLE #076 ON PRODUCT INFO CARD
www.sascom.com
PH: 905.469.8080
e-mail: sales@sascom.com
FAX: 905.469.1129

between any of these systems. They are all basically discrete 5-channel (7-channel for SDDS) tracks with stereo surrounds and low-frequency reinforcement. That was the format we pioneered for *Apocalypse Now* and which has now become the standard for both theaters and home theaters, where it is called AVR3 on laserdiscs or 5.1 on DVD. A good 70mm 6-track with split surrounds gave you the same experience—emotionally and technically—as you get today with digital systems. Prints were a lot more expensive, cumbersome and fragile, however, so the new systems are a definite improvement on that level.

Besides film, what are your passions today, and how do they feed your creative instincts? You mentioned architecture earlier...

I think you will find a high percentage of filmmakers who are interested in architecture. Both are a mixture of art and business, where you have to build something complicated that's going to look great but also withstand the storms. And you have to collaborate with a large team of people and build for a price, and it has to integrate itself into the society as a whole and yet hopefully elevate the prevailing standards, as well. Architecture is an exterior medium, film is an interior medium: an architecture for the interior of the mind. The patterns of image and sound and story of a good film have to have a certain entertainment value, but ultimately they also last in the mind as sort of a template or matrix of how to organize reality. After you have seen a good film—a *good* film—you leave the theater with a better idea of how to make sense of the world, of a world that would otherwise be chaotic or unacceptable. But this is the same function as the arts have always had—painting, music, writing, etc. Architecture, too, of course.

My other passions are translating Italian poetry, and astronomy. Translation is transformative; and astronomy is the discovery of an underlying order in apparent chaos. Both good descriptions of the editorial process.

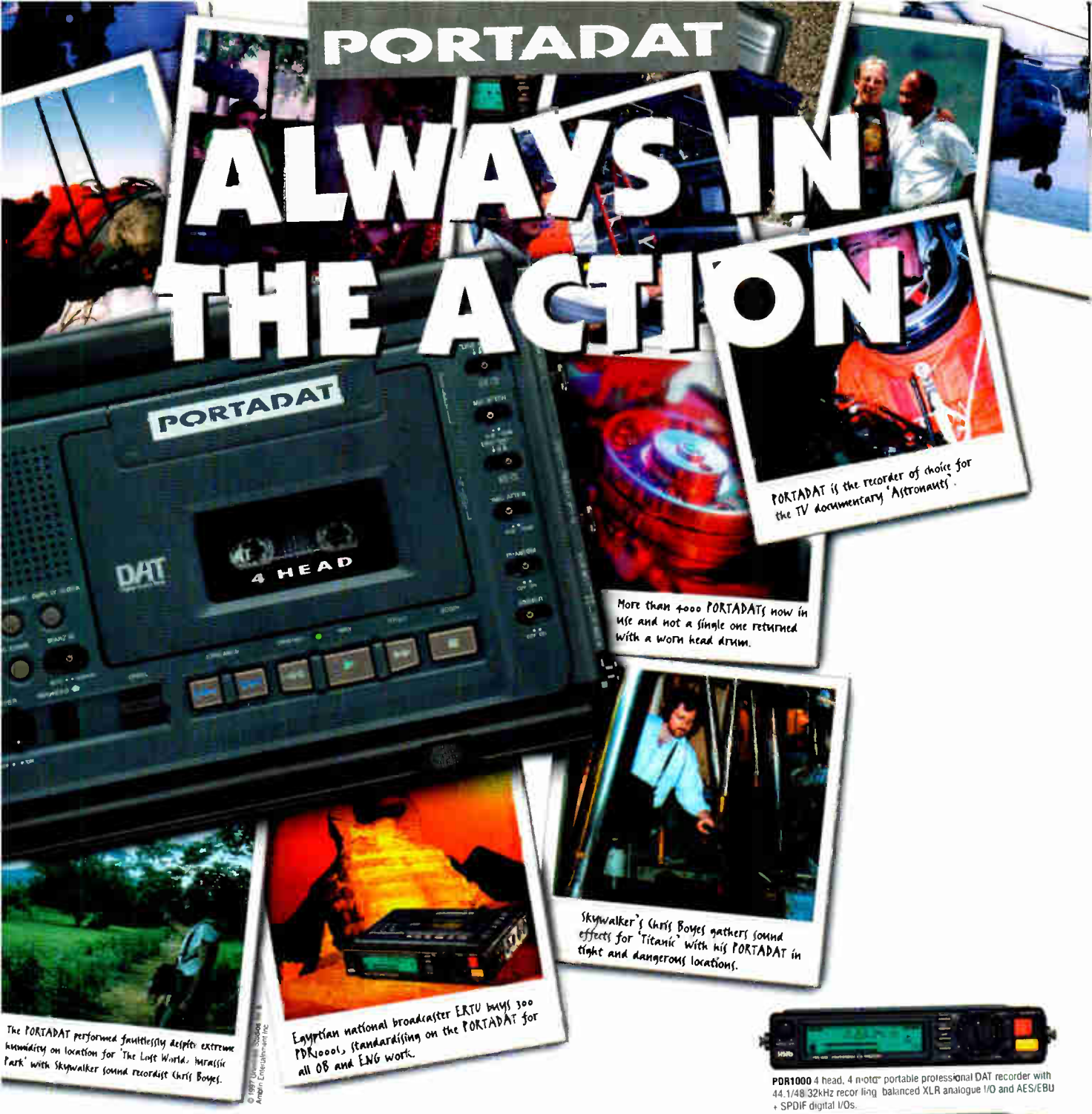
Have you found order in your life? Are you in a comfortable place?

I guess it's the appropriate blend of chaos and order. I have a big family, and I've been married for 33 years, and we live on a horse/berry/apple/chicken farm out in West Marin County. ■

Tom Kenny is the managing editor of Mix.

PORTADAT

ALWAYS IN THE ACTION



PORTADAT is the recorder of choice for the TV documentary 'Astronauts'.

More than 4000 PORTADATs now in use and not a single one returned with a worn head drum.

Skywalker's Chris Boyes gathers sound effects for 'Titanic' with his PORTADAT in tight and dangerous locations.

Egyptian national broadcaster ERTU buys 300 PDR1000s, standardising on the PORTADAT for all OB and ENG work.

The PORTADAT performed faultlessly despite extreme humidity on location for 'The Lost World, Jurassic Park' with Skywalker sound recordist Chris Boyes.

PDR1000 4 head, 4 motor portable professional DAT recorder with 44.1/48/32kHz recording, balanced XLR analogue I/O and AES/EBU + SPDIF digital I/Os.

PDR1000TC 4 head, 4 motor professional portable DAT recorder equipped to record, generate and reference to timecode in all existing international standards.

Film, radio, TV, music recording – whatever the application, PORTADAT delivers.

From the deserts of Egypt to the jungles of Costa Rica, PORTADAT consistently proves itself to be the most compact, reliable and best sounding professional DAT portable on the market.

No wonder PORTADAT users are amongst the busiest sound recordists in the business.

And now, PORTADAT is more affordable than ever before. So talk to HHB today about PORTADAT. And put yourself in the action.

HHB Communications USA · 626 Santa Monica Boulevard Suite 110, Santa Monica, CA 90401, USA
Tel: 310 319 1111 · Fax: 310 319 1311 · E-Mail: sales@hhbusa.com

HHB Communications Canada Ltd · 260 King Street East, Toronto, Ontario M5A 4L5, Canada
Tel: 416 867 9000 · Fax: 416 867 1080 · E-Mail: hhbcan@istar.ca

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

http://www.hhb.co.uk

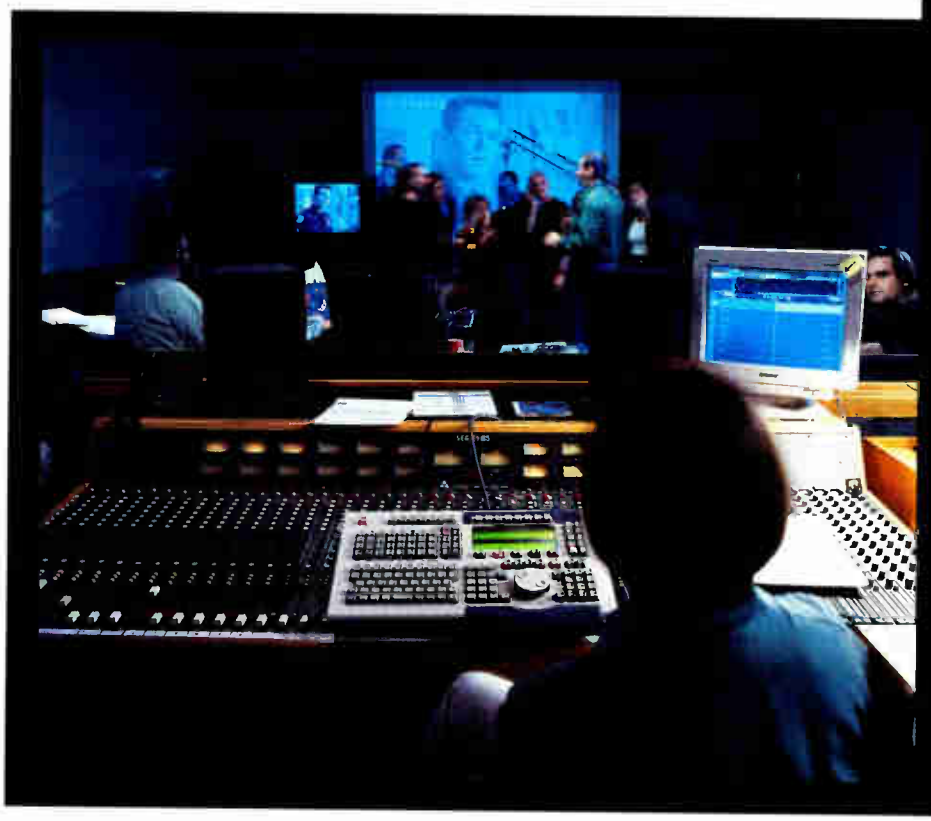
HHB

CIRCLE #081 ON PRODUCT INFO CARD

EDITING & MIXING BROOKLYN

It's near the end of a long day on the *Brooklyn South* set, a highly realistic reproduction of a New York precinct house built on CBS Studios' Radford Lot in Studio City, Calif. Fortunately, the cast and crew are between takes. Catching the eye of a production assistant, I am directed to the building's second floor, where the show's co-producer, supervising sound editor and others are meeting tonight with the picture editor. Their immediate agenda: to view a final cut of Episode 10 and spot the hour-long drama for sound effects, Foley, loop lines and the other sonic detailing that's necessary to produce the high-impact TV drama from Steven Bochco Productions.

Still fighting off the effects of a head cold, picture editor Scott Eilers' first



ADR assistant Steve Fitzmaurice, far left, sits on Stage 5 with the SuperLoopers while Stacey Michaels mixes at the Trident Series 65. ADR is recorded directly into the Fairlight.

BY MEL LAMBERT • PHOTOS BY BETSY ANNAS

SOUTH

Clockwise from front right: Craig Otte, re-recording mixer; Joseph Berger-Davis, co-producer; Victor Iorillo, supervising sound editor; Elmo Ponsdomenech, re-recording mixer. Back row (L to R): Fred Clemons, recordist; Peter Fausone, technical director (Westwind Media); Nino Centurion, music editor; Todd Langner, chief engineer; David Beadle, dialog/ADR editor; Rick Hromadka, sound FX editor; Larry Goeb, dialog/ADR editor; Steve Sax, sound FX editor; Sonja Henry, dialog editor; Russ deWolf, dialog editor; Tom Scurry, dialog/ADR editor.

comments are blunt: "Act 4 is gonna be a bitch!" Indeed, Act 4 culminates in a violent bank heist that goes horribly wrong, centered around one of the primary characters saving the life of his brother, an undercover cop posing as a member of the robbery gang. Directed by Michael Watkins, it's a fast-action, tightly edited sequence, and it will require a large amount of looping, Foley, hard effects and some focused attention to dialog editing.

Starting from the act-up and opening titles, and proceeding through the demanding eight-

BROOKLYN SOUTH

minute montage that is Act 4, Eilers runs the picture for the assembled crew. As he stops and starts the playback from his Avid Media Composer workstation, Eilers explains what he considers to be key aspects of the drama and where certain sounds might be required. All we hear is the roughly edited production track, plus some temp music and effects that Eilers has laid onto the reel. As a former sound editor on such shows as *In the Heat of the Night*, and HBO's *Heart of Darkness*, Eilers has a well-developed sense of where sound can add to the drama he's been cutting. "That background [in audio] helps me to cut more freely," Eilers considers, "knowing that there are ways to cover certain transitions with sound. Because I know what can be fixed in post, I'm free to concentrate on making the pictures work together, without worrying too much about outside details."

Overseeing the sound editorial and

Foley artists Zane Bruce and Dale Perry create sounds while Foley mixer Aaron King records.

Surround Yourself With PicMix™

The requirement for Surround Sound in the traditional Music Recording and Post Production facility has created new demands technically and financially. Dedicated Post Production consoles supporting Multi-bus formats* are expensive and in many cases unnecessary. The addition of PicMix to a standard audio console provides the features and functionality necessary to mix-to-picture. This at a fraction of the cost of replacing your console. If you find your console on this page you are PicMix ready. Even if you can't, chances are if you have 8 busses, you're on your way.

Learn what the movie professionals already know and contact Otari for the name of your local "PicMix Pro" because, "You've gotta be in pictures."

* Dolby Surround; 5.1; SDDS; DTS

PicMix™ Products are sold and serviced worldwide by OTARI®

Otari, Inc.
Japan
Phone: (81) 4-2481-8626
Fax: (81) 4-2481-8633

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

Otari Oeutschland GmbH.
Germany
Phone: 49 (0) 2159-50861
Fax: 49 (0) 2159-1778

Otari Singapore Pte., Ltd.
Phone: (65) 284-7211
Fax: (65) 284-4727

Internet: http: //www.otari.com

SEE US AT NAB BOOTH #10341

CIRCLE #079 ON PRODUCT INFO CARD

BROOKLYN SOUTH

mixing of this season's *Brooklyn South* is supervising sound editor Victor Iorillo, from Miles O' Fun Sound, a full-service editorial facility within Westwind Media's Burbank headquarters. Also located in this recently opened complex are scoring, music editing, Foley and ADR stages, plus a pair of identical dubbing stages, one of which is used for the re-recording of *Brooklyn South*.

Despite Iorillo's wide range of experience in supervising and editing sound for film and TV (including the much-admired *My So Called Life*), *Brooklyn South* marks his first effort as sound supervisor for a prime-time show. "This episode of *Brooklyn South* was a logistical nightmare," he says of the weeklong process from edited workprint to turnover to the network. "We normally have five days for editorial, two days for the mix, and maybe half a day for fixes after the show has been viewed by [executive producers] Steven Bochco, David Milch, William Finkelstein and their staff."

During the spotting session, Iorillo is looking closely for lines that will need to be looped, general hard effects to be pulled from the library or recorded specifically for this episode, plus Foley and other elements. "On a busy show like this," he says, "I'm continuously making notes. I want to make sure that we all feel happy with how we are going to envelop the show and what will be needed during the dub. I don't want there to be any surprises! I could tell from the run-through that Act 4—the bank heist—was gonna be real challenging."

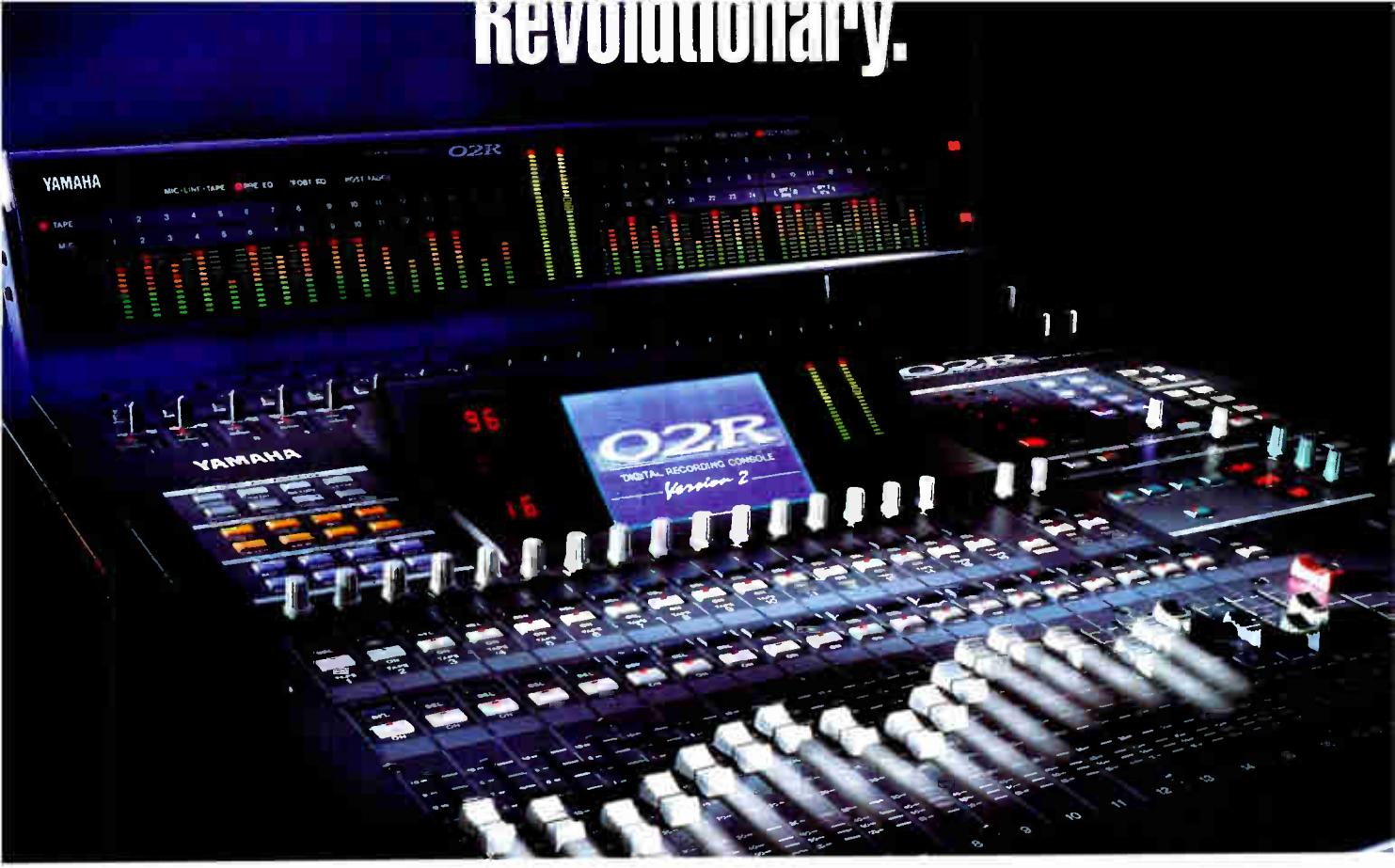
It turns out that the bank heist had been pretty much unscripted; the director had developed a basic framework for the action but experimented with the cast once they reached the set. The scenes were shot three times, using different camera angles.

"We had a *lot* of lines that needed to be replaced," Iorillo stresses, "and a lot of group ADR for the bank customers—shouts and cries and they were being threatened by the three robbers. We also had a *lot* of Foley to cover, plus hard effects. We also knew that there was going to be music playing throughout the scene, and so our detailing was more important than ever, to hold the attention."

Because of the high degree of detail that goes into each episode, Iorillo normally assigns two effects editors, an ADR editor and four dialog editors to work in parallel on each episode. Editing of Mike Post's score also is handled by Westwind Media. "Even with access to this many [editorial] people," Iorillo states, "we are under the gun to meet the mix date."

In terms of establishing an overall "sonic texture" for the show, Iorillo says the obvious models were *NYPD Blue* and *Hill Street Blues*, two of Bochco's previous cop dramas. "But we needed to establish a unique feel to the show, and one that could be a consistent factor from show to show," Iorillo says. The decision was made, he recalls, "to maintain more of an 'internal' or 'intimate' atmosphere to the station house, rather than use a lot of external traffic sounds, as is the case with *NYPD Blue*, which we edited at Miles O' Fun.

"Also, we established a unique sound for each of the rooms on the set—even recording room tone from the largest entrance lobby/squad room and making the upper rooms more quiet than the lower ones. The interview room, for ex-



Evolutionary.

The Yamaha O2R Version 2 adds a powerful new suite of mixing tools to the digital mixer that has radically changed the way that professionals work. With its unique capabilities, O2R ushered in a new era in creativity and productivity. O2R Version 2 proves that the revolution is still going strong. In fact, there are far too many new features to mention here. For the full manifesto, call (800) 937-7171 ext. 656. *Viva la revolution!*

Surround Sound *panning on every input- a must for TV, film and multichannel music mixdown.*

New AutoMix Features: *Offline editing, 96 scenes/bigger mixes, touch sensitive fader emulation and lots more.*

Remote Control: *Use O2R faders and keys to control outboard mixers, effects, sound modules and transports via MIDI.*

O3D

Same stuff, smaller package plus new 32-bit effects and mouse control. A powerhouse in music and post applications.

O2R Version 2

YAMAHA®

SMART MIXING

CIRCLE #083 ON PRODUCT INFO CARD

BROOKLYN SOUTH

ample, is considered to be one of the quietest rooms in the precinct house. Having established that 'protocol,' so to speak, we know what ambiences and backgrounds to build for each of the scenes once we have spotted [the show]. We also use sound textures to establish the time of day."

Once an episode has been turned over to the editorial crew, effects tracks can be quickly roughed in with a number of backgrounds. "We make extensive use of Fairlight MFX3plus systems here at Miles O' Fun," Iorillo continues, "and can call up general sounds we know we will need for each episode—doors opening and closing, typewriters, street sounds and the rest—from our effects libraries. And since Foley and [principal, plus group] ADR are recorded directly to Fairlight hard drives, we have consistency between all of our recording and editing areas. We also have DaDs [Fairlight Digital Audio Dubbers] for playback on the re-recording stage, which helps speed up the dub when we make changes."

"The MFX3 is *perfect* for dialog editing," adds David Beadle, who was added to the editorial crew to handle the complex dialog cutting on Act 4. "I can lay up the source reels against timecode very quickly, phase them to check sync and then split them off [onto separate virtual tracks] as we build the reels. Making edits and trimming in/out points is real fast, using handles and dedicated nudge keys on the [MFX3 control keyboard], while assigning variable crossfades."

In terms of effects tracks, Iorillo says, "There are a lot of sounds we need that are unique to the location: the elevated train, sirens and cars we use to place the viewer in the action. For the bank heist, we also needed helicopters, traffic noises, weapon noises, floor skids, door scrapes, tire squeals and so on. I knew during the spotting session that, because it was so complex, we would need an extra day to cut the effects on this one scene."

Principal effects editor on *Brooklyn South* is Rick Hromadka, working with Steve Sax. "I use the 24-track [MFX3plus] to prepare 12 mono effects tracks, plus six stereo tracks across 13-24." Stereo tracks include police-type backgrounds, traffic wash and traffic drones. "There is *never* silence in a scene," Hromadka says. "We always have something playing out. And sound is often used as a punctuation, such as a siren at the end of a scene to denote a transition. And to establish the fact that we will see rain at the end of Act 4—they shot the exteriors over two days; day 1 was dry, and then it suddenly rained—I used a touch of thunder as a subliminal cue so that the audience would accept the fact that now it was raining."

Foley was recorded on Westwind's Stage 4, directly to an 8-track MFX3 system: mono footsteps across tracks 1-4, props across 5-7 and movements to track 8. "We record all of the cloth and movements in the first pass," Iorillo says, "followed by all of the feet sounds, with different shoes and surfaces. Then we do the props." Working with seasoned Foley artists Zane Bruce and Dale Perry, it takes around ten hours to cover Foley for each episode of an hourlong drama like *Brooklyn South*. "But, for the bank heist, we had a lot more clothing, shoes, weapons and other elements to cover, so we ended up going into overtime!"

ADR was recorded over a period of

two days: principal ADR on the first day, group on the second. At the Trident Series 65 console in Westwind's Stage 5 were engineer Stacey Michaels and recordist Stephen Fitzmaurice. "For the group ADR, we use a great bunch of actors, SuperLoopers, who work on many of our shows and know the types of elements we're looking for," Iorillo says. "Also, [co-producer] Joseph [Berger-Davis] works in the room with the actors and oversees the process of developing realistic lines for the backgrounds, walk-bys and the rest."

The SuperLoopers actors are pretty much left to develop lines themselves—either as singles or doubles—producing impromptu dialog as they walk across the stage in front of the mic: "I saw him over at the two-seven, and he's gonna take care of it." Such lines were laid under principal actors in scenes shot in a crowded squad room, for example, or when an actor might be speaking on the street. SuperLoopers also recorded a series of ensemble backgrounds for the bank heist scene, including a series of screams, whimpers and cries. "The dynamic for group ADR is for the actors to react to the picture," Iorillo says. "They respond to the ups and downs of the action, and the general 'feel' of a scene."

With the various dialog, effects, ADR and Foley elements edited in sync to MFX3 hard drives, and then transferred to DaD format for playback, the project moved onto Westwind Media's Stage 1, where mixers Elmo Ponsdomenech (dialog/music) and Craig Otte (effects) prepared the Euphonix CS3000 console for the dub session. Due to its complexity, Act 4 was allocated a complete day for re-recording. "Music arrives [from composer Mike Post] as four stereo pairs," Ponsdomenech explains, and is delivered to a 24-track DaD with Foley. "Dialog was on a single DaD: eight tracks of principal production dialog, eight of principal ADR, and eight of group walla. And we had 24 tracks of effects on DaD." Doremi V1 random-access video drives are used on Westwind's dub stages to reduce access time.

"Our biggest challenge," Otte says, "is to get the mix completed in the time we have available. With a complex reel like Act 4, we can take advantage of the CS3000's automation to save us a lot of time."

In terms of a dramatic conclusion, Act 4 has been heading toward the inevitable: the shooting of one of the perpetrators by police officer Jimmy Doyle (Dylan Walsh) to save his brother Terry (Patrick McGaw), an undercover cop. "After eight minutes of dramatic music and high drama," Iorillo reflects, "we were not sure how to underscore the actual shooting. There were initial suggestions during the dub that we hold silence just before officer Doyle aims and shoots the bank robber, who is drawing a bead on Terry Doyle.

"I had also cut a sequence using some unusual organic electronic effects and a lot of processing that we tried under the music," he continues. "In the end, we experimented with it a couple of ways, and [after a trial showing at Steven Bochco Productions] we went with no music at the climax. I think making space for the audience to fill in its own emotional conclusions at that point—rather than having the high-power score and effects heighten the mood—worked very well.

"Yes, Act 4 of that episode of *Brooklyn South* posed some unique challenges," Iorillo concludes. "But with the manpower resources we have available at Miles O' Fun and Westwind, plus some cutting-edge workstations, we love to respond to whatever is thrown at us. A show like *Brooklyn South* depends on good sound to complement the great visuals and outstanding acting." ■

BY TOM KENNY

POST SCRIPT

SOUND FOR FILM

SLUMMING WITH THE FIRST UNIT

GATHERING YOUR PERSONAL EFFECTS, PART 2

by Larry Blake

Getting good production dialog recordings during the shooting of a film is a notably under-appreciated, misunderstood part of the filmmaking process. It seems shocking to those of us who record, edit and mix film sound that our colleagues have no grasp as to the real value of getting the dialog right on location. "They replace everything in post, right?"

PHOTOMONTAGE: TIM GLEASON

If that's their attitude with regard to the words coming out of the actors' mouths—also known as dialog—you can imagine what it is toward sound effects. Pretty grim, indeed. This column, which is the second in a four-part series on sound effects recording, will focus on techniques I've learned for recording sound effects in conjunction with the production.

• Talk with the production sound team. If you are on the set, remember that their needs come first. Some production sound crews don't exactly roll out the welcome mat to us post-types knocking around in their 'hood. You need to understand this before you start, and make sure to let them know that you're not there to look over their shoulder and tell them how you think they should be recording production dialog (although I won't be hurt if you show them a previous column in which I begged them not to use EQ on production tracks).

Let them know the reality of the situation: You are there to record sound effects that you know they will be too busy to record, not *unable* to record. The reason it makes sense for you to be on the set, recorder(s) in hand, is that there is an acoustic event happening that merits special attention. More often than not, we're talking about crowds.

There are three ways a sound effects recordist can get crowd recordings on film sets. First, there are many opportunities to get great material while the crew is setting up. As long as you can position yourself to get a minimum of clearly film-crew-specific sounds and words, you will score many priceless recordings.

Last fall, I had the occasion to record two separate prison yards—in Lancaster, Calif., and Angola, La.—for the film that I'm currently working on (*Out of Sight*). It was easy to find a sweet spot in those yards, where I had a clean shot at a group of prisoners talking, playing basketball or horseshoes, lifting weights, etc. Not only was I able to record all this during takes, there was even better material to be had while everybody was setting up.

Now I have hours of material that matches each location perfectly, not only in terms of the prison size and activity, but also with regard to the age and ethnic make-up of each yard, which was distinctly different in the two locations. This type of material is virtually impossible to pull from a sound library, and it's equally tough to record as a stand-alone sound effects session, since you would have to run through all sorts of red tape that the production crew had long since dealt with.

(Classic group walla, in the Hollywood sense of bringing in eight or more actors into a studio, can still be useful in getting specific lines to poke through—what's known as "free and clears." Nevertheless, a good sound job will need the depth that is best accomplished in the simplest manner.)

In the instances noted above, I was able to function separate from the production team, which was quite rightly worried about either prepping or actually recording the sync production track. True, if I had not been on the set, the production mixer (my longtime colleague Paul Ledford) might have had the chance to steal a few moments here and there, but he certainly wouldn't have had the time and focus to capture the

—CONTINUED ON PAGE SFP 36

THE APOSTLE

MUSIC AS THE SOUL OF THE SOUTH

by Rick Clark

Robert Duvall is one of a handful of actors consistently associated with films of integrity. His performances in films like *Tender Mercies*, *The Great Santini* and *The Godfather* are considered classic, but for a long time he had nurtured the idea of doing a "small" film, set in the South, portraying a sincere, committed evangelist wrestling with his own demons. The result of that ten-year vision is *The Apostle*, a penetrating character study that Duvall wrote, directed, starred in and financed.

"I think there is such an interesting mix down there with music and literature and the juxtaposition of the races," Duvall remarks. "It is so tremendously sophisticated, and yet, movies tend to put quotation marks around things and make it like somebody said, 'Lil' Abner.' You so seldom see [the South] treated in a hip way."

Duvall has a keen musical sense and knew that music would be integral to his film as it is to the Southern way of life. He was especially concerned about avoiding cliche underscoring techniques and uninspired source music appearances.

"I always wanted the scoring to be sparse," states Duvall. "I just feel that there is too much music in movies. That has been a tradition in Hollywood since the beginning of time, and I think that sometimes it continues over to now. I just wanted the music in this movie to be functional and add something, but in an integrated way. I think music is very important, but I think it has to be very carefully placed. That was always my idea."

Duvall enlisted the services of Peter Afterman, of music supervision company Inaudible Productions in Los Angeles. Afterman's credits number more than 100 films, including *Sling Blade*, *The Big Easy*, *Wild at Heart*, *Honeymoon in Vegas*, *Stealing Beauty* and *Howard Stern's Private Parts*.

PHOTO: ROCHELLE WINTERS

Robert Duvall joined Emmylou Harris at Nashville's Masterfonics.

Afterman, in turn, recommended composer David Mansfield, a New York-based multi-instrumentalist whose credits range from playing with Bob Dylan and Johnny Cash to composing orchestral film scores. Over the years, Mansfield has created music for more than 25 movies. His first was *Heaven's Gate*.

"We had talked to a lot of people, and some people just didn't get it, but David got what I wanted," Duvall explains. "I wanted fiddles, guitars and very simple acoustic instruments, which would be kind of a simple continuation of the existing old hymns in the film. He's a New York guy, but he played with Dylan and some good country bands, plus he knows the mechanics of putting music in a film in the prescribed way. He is very dedicated with a wonderful touch."

—CONTINUED ON PAGE SFP 42

FACILITY SPOTLIGHT

PATTERSON, WALZ & FOX

by David John Farinella

Because one day is never like another, the principals of Patterson, Walz & Fox opted to take a different approach when building their studio. Instead of trying to be all things to all musical genres, Rick Patterson says it made more sense to build alliances with their favorite studios around the world.

"If I put what was in, say, Sony Soundstage in L.A. down here [in La Costa, Calif.], it would be very expensive, but it would certainly be worth it," explains Patterson. "But that studio wouldn't be my choice to go and do a hip hop piece. So, we figured that we wanted a project studio that was good enough to show the demos and that would let us put down some tracks that we could keep, but [we wanted] the freedom to go any place in the world that was right for the project."

That said, the studio features the classic trappings of a project studio, including 32 tracks of ADAT, DA-88s and a Mackie console. The synthesizer racks are stocked with Roland's S770, JD-990 and JV-1080, as well as an Oberheim Xpander, Nord Lead 2, Yamaha TX816, Kurzweil PC88, Korg exM1 and an E-mu E-IV-X. Pro Tools 4.0 and Digital Performer run on a Power Mac 9600 and 7600. Outboard gear is pretty straightforward—TC Electronic Finalizer, Lexicon PCM80, Behringer Composer, Rane PE15 parametric EQs, Ensoniq DP/4 and Mark of the Unicorn MIDI Timepiece AV. Monitoring is through a pair of KRK 7000s and JBL 4311 monitors. Cable modem technology, rather than ISDN, connects the facility to outside studios.

From left: Neal Fox, Rick Patterson and Ron Walz

Patterson, Walz & Fox opened their doors ten years ago in northern San Diego County. While Patterson is from California, Ron Walz relocated from Indiana and Neal Fox came from New York. "So, we've got the psyche of the country somewhat covered," Patterson says with a laugh.

These three composers have produced well over 2,000 commercials, not to mention promos and network themes for both NBC and CBS, in a wide variety of

—CONTINUED ON PAGE SFP 44

POST NOTES

National Sound (NYC) creative director/VP Peter Fish composed an orchestral score for the HBO special *Dead Blue: Surviving Depression*. The score was mixed by John Arrias and Anthony Erice; the overall program was mixed by Ed Campbell...Not far away at the Edison, Gary Chester mixed Tan Dun's score for the Denzel Washington thriller *Fallen*...Nearly every division of Broadway Video, including Broadway Sound, was involved in the production of ESPN's Espy Awards show. Ralph Kelsey and Michael Ungar mixed the show. Also, Kelsey mixed Lifetime Television's new station ID...Super Bowl ads have become big business, and the creative team at Photomag (NYC) handled Lipton Brisk's "The Babe" spot. George Steinbrenner, Phil Rizzuto and Reggie Jackson came in for voice records; Rex Recker mixed the spot on the facility's Logic 2 console...Those who didn't watch football could have turned to MTV's halftime show, Celebrity Death Match, in which claymation figures of Howard Stern and Pamela Lee Anderson fought to the death. John Bowen of Sync Sound (NYC) designed and mixed the short on an AMS AudioFile/Yamaha 02R system. Meanwhile, Sync added sound designer/mixer Danny Caccavo, formerly of A&R Studios and Record Plant, to its staff...Chelsea-based RK Music recently celebrated its tenth anniversary and put out a package of 50 promos for HBO...Eastern Sky (Casselberg, FL) owner and president David E. Brown mixed the documentary *Best Man*, a follow-up to 1979's Oscar-winning film *Best Boy*...Circa Productions of Columbus, OH, composed a "soulful" original score for the 1998 Florida Tourism campaign...Another company moving toward film work: John Hunter of Juniper Productions (Dallas) did the score for an IMAX film, *Dallas: A Unique Place in Time*...Eric Eckstein and Andy Greenberg of One Union Recording Studios (San Francisco) mixed 104 Borders TV spots, making use of the facility's Pro Tools 4.0 and Yamaha 02R. Also, engineer John McGleenen continued with his ongoing voice recordings for Pixar's new features, *Toy Story II* and *A Bug's Life*, as well as VO of Robert Smith of The Cure for an episode of the Comedy Central smash hit *South Park*...Installation News: Paramount Pictures put in its third Euphonix console, on Stage 29, for use on Terry Bradshaw's new talk show and *Soul Train*...Film composer Basil Poledouris purchased a Euphonix CS3000 for his new film scoring facility, Blowtorch Flats, in Venice, CA...dB Post of London was scheduled to take December delivery of a Harrison SeriesTwelve console for film mixing...Cinetel Studios in Knoxville, TN, added a 24-channel AMS Neve Libra as part of its facility wide digital upgrade...5.1-channel types in Hollywood have discovered something the consumer world has known for some time: Miller & Kreisel Sound Corp. (M&K) speakers. Monterey Post, The Bakery and Chace Productions, all of Burbank, purchased Multichannel Pro Solutions 5.1 discrete surround monitoring systems; and The Enterprise, also in Burbank, purchased another pair of MPS-5000 SUB subwoofers...King-TV, the NBC affiliate in Seattle, bought an AMS Libra Live digital console as part of its yearlong changeover to full-digital production... Across the country in Cleveland, public radio station WCPN put in a 24-channel SSL 8000 G console...And a bit further south, Virgin Television de Mexico, part of the Virgin Digital Studios Group in Mexico City, installed an SSL Scenaria with VisionTrack...California-based design firm CMBE has installed a 360 Systems Personal Audio Editor with instant Replay and Short/cut as part of its "Studio of the Future" broadcast demonstration studio. Find out about the facility at www.cmbe.com...2dogs digital audio in Moline, IL, added another Studer Dyaxis II workstation and 25 additional hours of storage...Facility News: In Toronto, Magnetic North sold off its satellite audio division, Master's Workshop, to the original founder, Doug McKenzie...DIG IT Audio, NYC, opened a new four studio audio post complex at Varick-at-Houston... Soundstage Productions moved from Galesburg to Climax, MI, and promoted Derek Menchinger to head engineer... Bell Sound has opened a West L.A. facility, at 12421 2 W. Olympic Blvd....People: Nathan Dubin has been promoted to composer/sound designer at Chris Bell Music & Sound in West Los Angeles... Voodoo (Hollywood) has expanded its sound division with the hiring of Kathryn Korniloff as sound designer/composer...Michael Simpson joined the staff of Tell-A-Vision Post in Hollywood, then went straight to work on a behind-the-scenes look at *The Simpsons*, in celebration of the company's 200th episode with the Fox hit...Nutmeg Recording (NYC) has hired engineer James Twomey to take the reins in Studio A...Skywalker Sound has named Susan Leahy director of operations for its commercial productions division...Neil Karsh assumes the title of vice president of audio services for the New York Media Group, which, on the audio side, includes East Side Audio, Mixed Nuts Recording Studio and Superdupe. ■

The new 24-channel AMS Neve Libra at Cinetel Studios, Knoxville, Tenn.

—FROM PAGE SFP 34, PERSONAL EFFECTS

whole picture. For example, in situations like this, with a group of extras talking among themselves, eventually the energy level will get real high and the assistant directors will have to calm everybody down. This is great stuff and can only be recorded when you're rolling for long stretches of time.

Once you get back to the edit room, you then have more of the pieces of the crowd puzzle: high energy, then quickly getting quiet (once you remove the AD's voice), then quiet talking. The energy will gradually pick up again, and you'll come around 360 degrees. Vary your position from time to time, making sure that you don't get 30 minutes with one guy in one conversation sticking out. And sometimes the odd comments fit well into the whole scheme. The idea, as always, is to try to record as much for your library as you do for your film.

If the production crew has the time to record the set *au naturel* with you between camera setups, so much the better. Though production takes have clap-

The OMR 8 24-bit Digital Dubber.

- Field proven and in use in studios around the world
- Stunning audio performance from 8 to 1024 channels of 24-bit record and replay
- Unique integrated solution with built in high performance 24-bit A/D and D/A converters
- Choice of a wide range of media including:
  - Magneto Optical disk
  - Removable hard drive
  - Jaz™ drive
- High quality audio scrub across all tracks, forwards and backwards, locked to timecode or bi-phase and at all frame rates
- Fully RS-422 9-pin controllable from any 9-pin compatible device
- Open disk format compatible with:
  - Avid OMFi
  - Lightworks
  - AES31
  - Broadcast .WAV
- True non-linear disk based operation
- Built in editing capability including:
  - Infinite track slip
  - Cut, Copy, Paste, Insert, Delete
  - Record Undo
  - Loop function
- User adjustable threshold record
- Unique D-*net* scaleable architecture allows control of multiple dubbers as a single virtual machine

LOOKING FOR A 24-BIT DIGITAL DISK BASED DUBBER?

WANT A PROFESSIONAL SOLUTION FROM A LONG ESTABLISHED WORLD LEADER IN DIGITAL AUDIO?

YOU'VE JUST FOUND IT!

AB Booth No.M7874

DIGITAL AUDIO RESEARCH

DAR

Digital Audio Research Limited, 2 Silverglade Business Park, Leatherhead Road, Chessington, Surrey, KT9 2QL, UK
Tel: +44 (0)1372 742848 Fax: +44 (0)1372 743532 Email: mail@dar.uk.com http://www.dar.uk.com

CIRCLE #008 ON PRODUCT INFO CARD

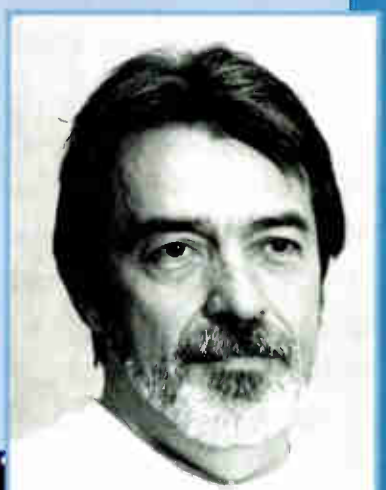
sticks and clearly defined beginnings (not to mention a scene and take number that should be voice slated!), recording your effects on a timecode machine is essential for a common reference marker. I'm assuming the production crew is rolling with timecode, and that you will jam your machine to theirs. This is especially useful with long stretches of stolen walla, where there aren't obvious peaks and valleys to match the separate recorders. (In the next column, I'll be dealing with editing and organizing this material in your workstation.)

The next two ways to record crowds on location both involve simultaneously recording with the production sound crew. These situations are when the camera is rolling and the crowd is audibly reacting (as opposed to miming when dialog is being recorded), or when you can convince the production team to give you the opportunity to run through a series of wild recordings with the crowd.

For example, there are two boxing matches in *Out of Sight*, and even though I was rolling simultaneously with the production sound team during shooting (thus capturing a good quad POV), it was still essential that we spend a few minutes getting wild tracks. No matter how good the production tracks are, they will probably not be long enough for the final, edited scene, and

JAZZING AT SOUNDMIRROR

On January 3, Nissan Celebrates America's Music showcased a program at the Kennedy Center presented by the Thelonious Monk Institute of Jazz. The special featured tributes to Ella Fitzgerald, Wes Montgomery, Dave Brubeck, Monk and others, by performers including Aretha Franklin, Herbie Hancock, George Benson and Wayne Shorter. Soundmirror (Boston) engineer Bill Winn directed the audio recording of the program, as well as the post. Editing was done by Jeff Baust on a 24-track Sonic Solutions system, while Winn handled the mix and sweetening on the Lexicon Opus. "The most exciting aspect of this project for me was that I was given free rein to treat the music of these outstanding musicians as I saw fit," Winn says.



Bill Winn

Herbie Hancock (at piano) and vocalist George Benson performing at the Kennedy Center

SEE US AT NAB TASCAM BOOTH #12502 & WAVEFRAME BOOTH #M7040

The winners' choice just got a new partner.

Post-production is complex enough without those equipment-conflict detours. Let the team of WaveFrame + TASCAM® keep you on track... and on time.

It's no surprise that 4 of the 5 Oscar nominees for Sound and the Emmy winner for Sound chose WaveFrame to edit on. Because WaveFrame is the only editing platform designed with them in mind. WaveFrame's innovative editing commands speed post-production, leaving you time to make the decisions that will make your project a winner.

No other system gives you tools this effective at a price this good. If you're doing audio work that goes with picture, you need tools that work every time — not that latest oh-so-cool plug-in. It's simple: You need WaveFrame.

Enter Tascam... with the perfect follow-through. With the Tascam MMR-8 8-track recorder/player and the Tascam MMP-16 16-track player, you'll be fully prepared to record your project, then play it back directly or edit it on your WaveFrame — to keep right up with changes that bounce in from the producer and director.

WaveFrame + Tascam's MMR/MMP Series = 100% compatibility. The Tascam MMR/MMP series offers the only digital disk recorders that are fully compatible with WaveFrame editors. Which means that your project will play back on the stage just the way you edited it, and that your MMR recordings will play back with perfect accuracy on the WaveFrame for editing.

No extra settings. **No** translations. **No** lost time.

Just plug and play. For Real. We guarantee it.

+

WaveFrame

Advanced Systems Group, LLC, 5447 Telegraph Ave., Oakland, CA 94609
510/654-8300 Fax: 510/654-8370 www.waveframe.com

TASCAM®

TEAC America, Inc., 7733 Telegraph Road, Montebello, CA 90640
213/726-0303 Fax: 213/727-7635 www.tascam.com

CIRCLE #088 ON PRODUCT INFO CARD

they will also probably be cut off in the middle of a cheer or reaction. The more parts of the whole scene that we have, the better our chance of constructing something exciting and interesting. That is, we need boos and cheers from both sides of the crowd (yelling the fighters' names), whistles and applause, between-round murmurs, etc.

Of course, the larger the crowd, the more recording channels the merrier. In one of the fight scenes for this film, which takes place in an old theater in Detroit, we rolled three stereo recorders, one of them in the balcony (which I'll probably end up sending to the surrounds), with another recorder kitty-corner across the theater on the bottom near the ring. The third recorder (Paul's) captured a closer POV of the crowd that was seated around the ring. Had I not been there, Paul would have done a great job by himself, but the multiple recorders will allow me to create a phase-coherent spread across all the channels in the final discrete digital mix.

• Observe basic etiquette with the production sound team. It goes without saying that you should be careful with suggestions on the production dialog recording itself. Try to talk with them beforehand, outside of the set, so that they will have time to talk through everything with you. Bring enough equipment so that you are self-sufficient. I'll be dealing with an effects equipment checklist later in this series; suffice it to say that it's not good form to mooch too much from the production sound crew. If you have to borrow a DAT tape, replace it and then some.

• Give the production team—the producer, director, unit production manager and assistant directors—notice about what you intend to record. Though the director is in charge of the film creatively, remember that the first assistant director is in charge of the set. After you've had a talk with the director as to what you intend to do (and have his or her blessing), discuss your needs with the first AD. If you are lucky enough to know that you will be doing a film before shooting begins, get a copy of as much schedule information as possible, especially the full shooting schedule, which lists the needs for each scene with regard to cast, props, special effects, vehicles and extras. (This is how you find out the days that there will be 600 people paid to stand around and become a crowd.)

You can frequently get good material even when there aren't obvious

crowd sounds. For example, you can get good ambiences if you can move far enough away from the speaking actors and hopefully not closer to generators. At Angola, I was able to get some good recordings of light movement and walking in the background.

In one scene, I asked the guy who was sweeping right in front of my mic position (about 40 feet from the camera) if he could not quite touch the ground. The sound of the broom sweeping could be easily done in Foley, but the background was a bit more valuable. I was sure that the brooms this far back were out of focus and that the guys didn't look silly.

I thought wrong, dammit.

After about three takes, I saw the first AD, Greg Jacobs, walking down the corridor toward me asking the non-sweeping convict/extra who told him not to touch the ground. I said "me, Greg." Then, without raising his voice but making his point perfectly clear, he chewed me a new body cavity for instructing an extra to do something without first asking him.

I apologized to the extra for having misled him, and he laughed and looked at me as if to say, "What are they going to do, put me in jail?" (Which reminds me of a true, funny story of a friend of mine who shall remain nameless [Mark Manginil, who was recording a group of prisoners in an auditorium: When they weren't cooperating, he said, "As soon as we do this, we can all go home.")

• Get production vehicles as much as you can. Of course, it's an established part of Hollywood sound effects recording tradition to do a car series long after the film has wrapped. However, if you're doing a period film, you're much better off recording them during production while they are on rental and the picture car coordinator can easily get you access. I had a blast in St. Louis in 1992 recording cars for the Depression-era *King of the Hill*.

In this case, the transportation team put me in touch with local antique car enthusiasts who were quite eager to let me record their pride and joys. As always, the biggest problem is finding a quiet area where you can do the pass-bys without having to deal with city roar—especially NG for period films, right?

I got some great recordings during *King of the Hill* when the "first team" was shooting a block or so away from the principal exterior set. The whole area was blocked off and very quiet, so I was able to have the period cars drive around for ten minutes, giving me some priceless recordings of "period traffic." Again, this wasn't rocket science; as that famous sound effects recordist Woody Allen says, all you have to do is show up.

• Try to keep an eye on second unit work. (Second unit is work that usually doesn't require the presence of principal actors, such as establishing shots of cities, car pass-bys and insert shots such as hands holding a piece of paper.) While second unit often involves a skeleton crew, sometimes it's a big deal and is responsible for large chunks of movies (as was the case this past year for *Batman and Robin*, since the lead character was unrecognizable because of the costume). Also, scenes involving stunts are also prime second unit material, with the classic example being the chariot race in *Ben-Hur*.

From the list above, you might have guessed that a lot of second unit material wouldn't need sound, at least according to our colleagues who have never been near the world of post-production. Second unit is where the Rodney Dangerfields of sound recordists live, but try to let the director, producer and first AD know the value of getting these simple recordings.

• Learn to live with people on the production crew asking you: "But can't

you just pull this out of your sound library?" I know, it's frustrating to be asked this by fellow crew members (who are sometimes even in the production sound department); it's a question that, if you really analyze it, cannot be answered in anything other than a sarcastic manner. I mean, come on, do they really think that it hadn't occurred to me to look in my library? The least sarcastic answer that I've come up with is, "You really are kidding me, aren't you?"

After listening to one of my "can't you use your sound library" stories, my colleague Richard Anderson exclaimed, "Where do they think sound libraries come from? Do they think that on the eighth day God created sound effects?"

Regardless of your religious beliefs concerning production sound effects recording, send your comments to PO Box 24609, New Orleans, LA 70184, fax 504/488-5139, or via e-mail at swelltone@aol.com. ■

Larry Blake is a sound editor/rerecording mixer who lives in New Orleans for reasons too numerous to mention, although one of them would have to be that the sounds of the city are almost as good as its smells.

—FROM PAGE SFP 35, THE APOSTLE

Mansfield quickly understood Duvall's vision. "I came into this project knowing what Bob really wanted—setting the mood behind the scenes with authentic music from that whole musical cultural background," he says. "He didn't want to use traditional Hollywood underscore techniques to further the action. He really wanted the music to flesh out the rest of the atmosphere. Here and there, there were some emotions that he wanted to tug on your heart strings but never in a traditional way. So I just went at it and played all of the instruments myself in my project studio.

"I have a lot of experience playing many different types of music, but to scratch out an old fiddle tune or play something on an old National guitar was a lot of fun. It is music that's emotional for me and speaks to me."

Mansfield recorded the score on a 16-track analog Fostex G-16S, using Dolby S for noise reduction. "I bought the Fostex a few years before the ADATs hit, and I have hung on to it because I was used to it," says Mansfield, who is currently doing music for the movie *El Evangelio de las Maravillas* (The Gospel of Wonders). "The Dolby S is very quiet, and it really holds its own against 16-bit digital. For what it is worth, it actually has warmth. I've recorded a number of scores on that machine.

"I go straight to tape, and I just use an old Scorpion console for monitoring," he continues. "I take the mic, usually a [AKG] 414 or 451, and go right into my Symetrix mic pre, and, if I really think the track needs it, I will go through an API 550A equalizer and maybe a UREI limiter. I try to process as little as possible.

Among the movies Mansfield has done, he considers *The Apostle* one of the most satisfying undertakings. "I feel like I was able to use my sensibilites and craft that I have learned from traditional film scoring and sort of come up with the best of both worlds, where it sounds like the music was done by nonprofessionals and just happens to fit perfectly in the film, which was the goal.

"The music was organic and unobtrusive, and the cues felt like they just grew out of the picture. I managed to give him emotionally and culturally what he was looking for, and it was played authentically enough that he would have to say something like he was surprised I was from New York."

Soundtrack albums have become big

Pick the Winner.

RØDE™ NT1
Large Diaphragm Condenser Microphone

Rave Reviews.

EM 1998 Editors' Choice Winner.

Unbelievable low price.

Electronic Musician
1998
EDITORS
CHOICE

"...rich, sexy, and downright delectable..."
–EM

Now you can enjoy the rich warm sound that only a true, large diaphragm condenser mike can deliver—at a price dramatically lower than everything else in its class.

Designed by the company that brought you the critically acclaimed Classic Valve Tube and NT2 microphones, The NT1 is sensitive enough to capture subtle vocal nuances, yet rugged enough to withstand high SPL in electric guitar and drum applications. Couple that with its 1" gold-sputtered pressure-gradient membrane, extremely low noise circuitry, internal shock mounting system—and yes, that precision sound—and you can easily see why the NT1 is the must-have workhorse for your studio.

RØDE NT1 $349

EVENT ELECTRONICS

P.O. Box 4189
Santa Barbara, CA 93140-4189
Voice: 805-566-7777
Fax: 805-566-7771
E-mail: info@event1.com
Web: www.event1.com

CIRCLE #093 ON PRODUCT INFO CARD

business in Hollywood. A look at the *Billboard* charts in any given week turns up any number of soundtracks in the Top 200. After *The Apostle* was finished, Afterman approached Duvall about putting out a soundtrack compilation. He had done much the same thing on a film called *The Big Easy*, and the resulting disc turned into sort of a sampler of New Orleans music. He figured that with *The Apostle*, the same thing could be done for gospel and Christian music.

"Bob loved the idea, so we went out and showed the movie to a bunch of people in Nashville, and everybody loved it," Afterman recalls. "We put this soundtrack together very quickly, and of course some artists said, 'Look, I would love to be in the movie with my song.' So, for example, this old obscure version of 'I'm a Soldier in the Army of the Lord' was already over the end title of the movie, and we had Lyle Lovett record a version. Bob loved Lyle Lovett."

Besides Lovett, the soundtrack album on Rising Tide Records also attracted the talents of country and gospel notables such as Patty Loveless, Johnny Cash, the Carter Family, the Gaither Vocal Band, Sounds of Blackness, Russ Taff, Steven Curtis Chapman, Lari White, and there is a duet sung by Duvall and Emmylou Harris.

"Afterman wanted to know if I would do a song, and I said, 'Only one,'" Duvall laughs. "He said, 'With Emmylou?' and I said, 'Great. The harmony and everything.' I'm not a singer, per se, like these people, but at least this was one of those old hymns that I had known all of my life, so it wasn't like a strain to learn something foreign."

For the duet on "I Love to Tell the Story," Duvall and Harris met in Nashville. Russ Maltin recorded the track at Masterfonics' The Tracking Room and mixed at Emerald Recording. Emory Gordy Jr. produced. "Emory is very laid-back and relaxed, and I like that. He works it just hard enough, but he doesn't overwork it," says Duvall. "I did what I did, and Emmylou took off of me, so I was in both of their hands, so to speak. And Vince Gill was great on mandolin. Many people stepped up, because I think they responded to the film and wanted to add their talents to a soundtrack album."

Depending on whether Duvall upset the early favorite, Jack Nicholson, and walked off with the Oscar for Best Actor, *The Apostle* may or may not still be in theaters. If not, check out the video or laserdisc and listen to the rhythms of the preacher and the music that is the soul of the South. ■

—FROM PAGE SFP 35, PATTERSON, WALZ & FOX

musical genres. They created the NBC 2000 package, which included over 300 cuts of music ranging from symphonic cues with Sinfonia of London to grunge, jazz and Gregorian chant styles. "Ron and Neal are both songwriters, so they handle anything that has lyrics. Ron is great for any kind of anthem or any song with strong emotional contact. He's from America's heartland," Patterson explains, with tongue in cheek. "Neal would be the electronic specialist, and I do most of the stuff that has larger ensembles—all the large orchestra stuff. I'm kind of the John Williams of cat food and beer."

Their wide-ranging musical talents will be put to the test as they complete an upcoming CBS News/Time Magazine 100 special, documenting the 100 most influential people of the 20th century. There will be a total of six shows, says Patterson, and in the first one he's attempting to find a common musical cue he can use for such personalities as Stalin, Hitler, Gandhi, Nelson Mandela, Chairman Mao, Franklin Roosevelt and Winston Churchill. "I'm trying to find a voice that kind of fits for all of them in the opener, and then we'll custom-score the other shows. We're trying to make it work modularly, because there will be six specials and there's a lot of music. Almost all of it is going to be symphony orchestra, and that can get cost-prohibitive if we don't figure out some intelligent way to make things modularly, so they can be intercut."

The symphony recordings for that special, as with the majority of their other symphonic recordings, will be done at either Whitfield Recording or Abbey Road Studios in London. Those studios are just two of the many they rely on after finishing temp tracks in the project studio, Patterson says. In the States, they often work at Sony Scoring Stage, O' Henry and Mad Hatter Studios in Los Angeles, St. Thomas Center (with Le Mobile remote) and Studio X in Seattle, L.A. East in Salt Lake City, and Studio West and San Diego Recording closer to home.

As they've gone from studio to studio, they have worked with a core group of engineers, including Armin Steiner, John Kurlander, Mike Ross, Bruce Ablin and Woody Barber. In Patterson's eyes, the engineer's philosophy is almost as important as the studio itself. "More than anything, we're concerned with how the music feels as much as how it sounds. If we get into a session where the technology starts to close down the creative impulses or starts to

impede it in any way, it becomes a drag. We've had a couple of times where we've had engineers that have been superb technically, but they've slowed the sessions down and it hurts the musicians' flow; it kills the whole vibe."

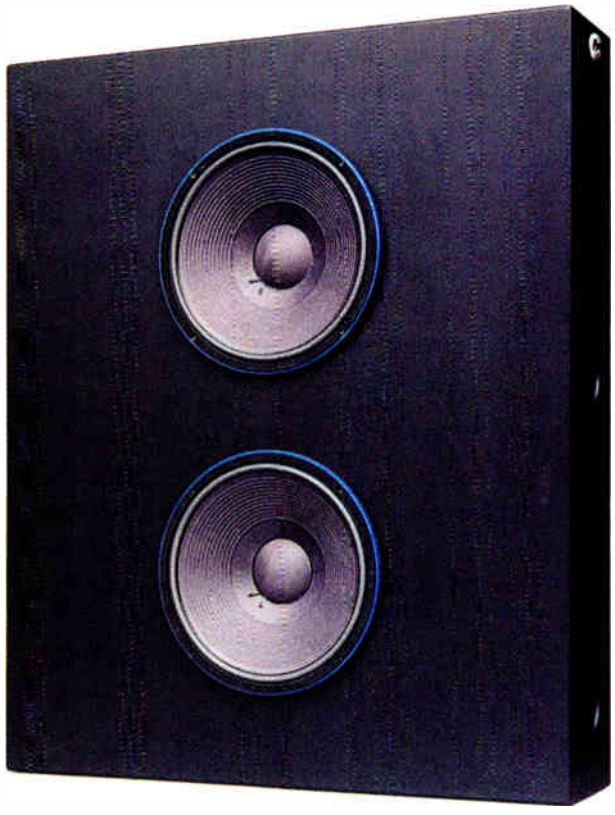
When on the road, Patterson usually brings a pair of Genelec 1031A monitors with him wherever he goes, although that's not all he uses. "Because so much of our stuff is for TV, to make sure that it's right, we go back to something like NS-10s or Auratones to check the mixes. My home theater has $5,000 speakers, and I like to hear things in those, but that would not be my final choice to make the determination of how it's going to sound on the air. One of the important things for clients that deal in broadcast television is that they actually listen to the music in its final form. When we're doing our demos, the KRKs are good speakers—a good balance between audiophile and the real world."

That balance is something Patterson tries to find in all aspects of the company's scoring work. After putting a temp score down using his sample library (the composers rely on either the Roland, E-mu or Akai libraries or Distorted Reality), they will take either Pro Tools drives, or ADAT or DA-88 tapes into a session with live musicians. "We like to have live musicians whenever possible," Patterson says, "because it really gives that human touch that you can't get any other way—although Neal Fox has gotten very good at fooling me to where I can't tell if some of the things have been done live or not."

The blend of technological savvy and personal touch seems to be one of the keys to Patterson, Walz & Fox's success, considering there have been times when all hopes of working with live musicians have nearly been dashed by a deadline. During the 1996 Olympics, they composed, recorded and mixed four Jeff Foxworthy orchestral spots for NBC in under 36 hours, with Patterson delivering the final tape to the security guard at four in the morning. "We've done Budweiser spots in the past where we got it, had it overnight, and had to get it done in 14 hours," he recalls. "The next time we saw it was on the Super Bowl." Many times, he admits with a laugh, that's what has driven his composing style: "A lot of it is from sheer necessity and the terror of having to have something done in the morning!" ■

David John Farinella is a freelance writer in the San Francisco Bay Area.

AUDIO PRODUCTS FOR FILM/VIDEO



STAGE ACCOMPANY BASS CABINETS

Stage Accompany (Bay Ridge, NY) introduces its SL Series bass cabinets, units specifically designed for shallow behind-screen spaces. Measuring only 9 inches deep, the SL cabinet design places reflex ports on the sides to prevent screen resonances and dust spots. Featuring the SA 15-inch woofer, the SL Series cabinets are available in single- and double-woofer configurations, and may be floor-mounted or flown.

Circle 301 on Product Info Card

EUPHONIX MACHINE CONTROL

Euphonix (Palo Alto, CA) offers the TT007 studio sync and machine control facility for CS Series consoles running MixView 3.0 software or later. The single-rackspace controller allows the Euphonix console to operate as a facility's central machine control hub and supports various formats, including MMC, Sony P2 (9-pin), Timeline Lynx and basic SMPTE/EBU code-only interfaces. Three RS-422 and three MIDI ports provide additional emulation and control options, and a video sync input allows the TT007 to resolve both PAL and NTSC video. The unit accepts a master timecode source and can regenerate or translate timecode with or without offset.

Circle 302 on Product Info Card

MILES 6-CHANNEL AMPS

Miles Technology (Niles, MI) introduces two new power amps, the MPR-450X and MPR-450T. Sharing the same two-rackspace chassis, both amps are 6-channel models designed for a range of installation applications. Adjacent channels may be bridged via rear panel switches, and each channel offers an individual gain control (rated power is 150 watts per pair of bridged channels into 8 ohms). Inputs may be daisy-chained to drive all six channels. Six fourth-order Linkwitz-Riley crossover filters are selectable via internal DIP switches, and SIP resistors set crossover frequencies; high/lowpass characteristics are selected with movable shunts. Inputs are Neutrik XLR/TRS Combo connectors for the MPR-450X; the MPR-450T has balanced terminal strips. Either retails at $1,149.

Circle 303 on Product Info Card

GEFEN SYSTEMS ONLINE SEARCH FACILITY

Gefen Systems (Woodland Hills, CA) offers M&E Pro Intranet, an online SFX and music search facility designed to operate over a Microsoft NT local area network (LAN). The system uses Netscape Navigator or Microsoft Explorer Web browsers as a front-end interface; LAN "clients" need install no additional software and can access M&E Pro Intranet from Macintosh or PC platforms. More than 100,000 sound effects are available from over two dozen commercial libraries, all preloaded on Raid arrays for instant retrieval. Users can search music and SFX databases by category, key words, synonym words, or catalog number and may audition selections by means of audio plug-ins. Approved selections may then be automatically transferred to the user's DAW in AIFF, SDII, WAV and other sound file formats. Minimum system requirements for the NT server include a Pentium II 233MHz PC with 128 MB of RAM and a 4GB hard drive.

Circle 304 on Product Info Card

Not Just Another Pretty Interface

Pyramix Virtual Studio

Exceptional User Inte-face
The most complete anc intuitive available

Instant Productivity
Quality results from the first day

Superior Son c Qua ity
24-bit AD/DA co nverters with
up to 96 kHz sampling

Designed for Broadcast
Unmatched machine control & VITC/LTC
synchronization

Backed by

Panasonic
Broadcast & Digital Systems Company

A world leader in digital systems

For more nformation call:
1-80C-777-1146

Interface with us at NAB '98
Booth #S1741

www.merging.com
847-272-0320

MERGING
SWISS ENGINEERED EXCELLENCE

A Class Apart

SSL's Axiom large format digital production system has been adopted as a benchmark console by many of the world's most prestigious broadcasters and audio designers.

The unparalleled power and flexibility of the Axiom system, with its integrated hub router and SSL's DiskTrack recording option, is now available in a compatible family of application-specific digital consoles.

Utilising the 'knob-per-function' design and proven reliability of Axiom, the A series family delivers unrivalled advantages to those working in live broadcast, mobiles, production, post-production and motion picture environments.

Distance yourself from the competition with a digital console from SSL, world leaders in audio engineering, and start to enjoy hitherto unachievable levels of creative freedom, productivity and profitability.

Axiom

Digital Production System

Aysis

Axiom Compact Console

Aysis air

Axiom Broadcast Console

Avant

Digital Film System

Altimix

Digital Post-production System

Solid State Logic

International Headquarters
Begbroke Oxford OX5 1RU England
Tel: +44 (0)1865 842300
Fax: +44 (0)1865 842118
Email: sales@solid-state-logic.com
http://www.solid-state-logic.com

New York	Los Angeles	Tokyo	Paris	Milan	Toronto	Singapore
+1 (1)212 315 1111	+1 (1)213 463 4444	+81 (0)3 5474 1144	+33 (0)1 3460 4666	+39 (0)2 2622 4956	+1 (1)416 431 9131	+65 (0)285 9300

JBL SMAART PRO

ACOUSTICAL MEASUREMENT SOFTWARE

Those of us who use, evaluate and "tune" sound systems professionally have many approaches to getting the most out of the equipment. Some of us prefer simply to trust our ears and listen. Others use a variety of instrumentation to display what is being heard visually. Typical of tools used for this purpose is the familiar real-time spectrum analyzer (RTA).

JBL's SMAART PRO software provides a dramatically different way to view audio data. JBL SMAART PRO is a PC-based program that can put into the hands of a field sound engineer the type of instrumentation typically used only for laboratory acoustic measurements. The package also offers familiar ⅓- and ⅙-octave spectrum analysis displays (Fig. 1). And it requires no external hardware, is easy to use and comes at a reasonable cost: $795.

The software comprises three different modules. I will discuss only the real-time module and the delay locator module, the features most useful for optimizing live sound reinforcement systems. The third module, an acoustic analysis program, is very comprehensive and deserves its own discussion.

I have been using SMAART PRO for several months with great success, both in concert situations for Electrotec Productions (tours with Bob Dylan and Rod Stewart) and as an independent consultant. I have found that it can seriously cut down the time needed for tuning an array: Because SMAART PRO does not require a steady-state test source such as pink noise and can operate with program music as a source, I can set delay times, collect transfer function data, make EQ changes and listen to the results in very short order. I have introduced the software to various mixers and system engineers; it usually takes them very little time to become proficient with the system and get worthwhile results.

HARDWARE REQUIREMENTS

JBL recommends at least a 90MHz Pentium running Windows 95 or NT, 16 to 28 megabytes of RAM and a Windows MCI-compliant sound card with stereo line inputs. The sound card should offer 16-bit resolution and selectable sampling rates from 5,512 to 44.1k Hz (some lower-priced computers do not have true stereo sound cards—check carefully before using). SMAART PRO uses only the A/D portion of the computer's sound hardware and will work well with a variety of sound cards. I have run the software without difficulty on several different computers with different sound cards. Get the fastest PC you can afford; a faster PC makes a large difference in using the software effectively. My SMAART PRO package runs on a Toshiba 166MHz laptop.

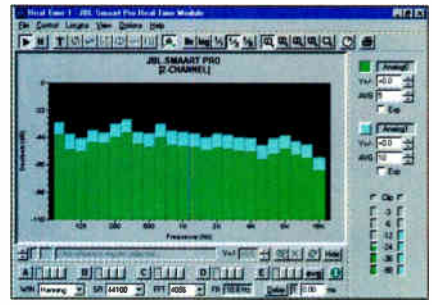


Figure 1: SMAART PRO offers ½- and ⅙-octave analysis displays in addition to transfer functions.

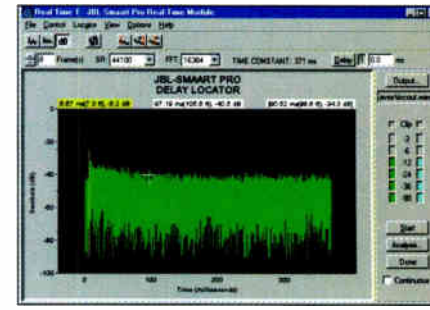


Figure 2: The time delay locator displays distance in milliseconds and feet.

Figure 3: The transfer function display shows frequency response in the fomiliar dB vs. frequency format.

Figure 4: Here, the transfer function and phase response are displayed together.

NOT YOUR TYPICAL SPECTRUM ANALYZER

The traditional spectrum analyzer divides an audio signal into frequency bands via a series of band-pass filters and displays the amount of energy present in each frequency band. But this type of analyzer cannot differentiate between the direct sound of the sound system and reflected and ambient sounds from the room. The typical spectrum analyzer does not display any time domain information.

Another type of analyzer uses

BY TED LEAMY

the Fast Fourier Transform (a complex mathematical calculation) of two channels to calculate the transfer function of the system under test. The transfer function contains both time and frequency information for the system being tested, which may be any audio device, such as an amplifier, equalizer or delay line. The real-time transfer function is a comparison of input and output of the system and reveals frequency response anomalies. The transfer function calculation data can be used in a coherence function, which helps determine what may or may not be corrected by EQ.

To analyze a sound system using SMAART PRO, connect one input to a measurement microphone placed somewhere in the audience listening area and connect the mixing console output to the other input. To compensate for the propagation delay between the speaker system and the test microphone, SMAART PRO provides an integral delay finder, ensuring that both analyzer inputs are comparing the exact same data at the same time. The delay finder function is also useful for determining delay times needed for multiple arrays, or for establishing time alignment among components within an array.

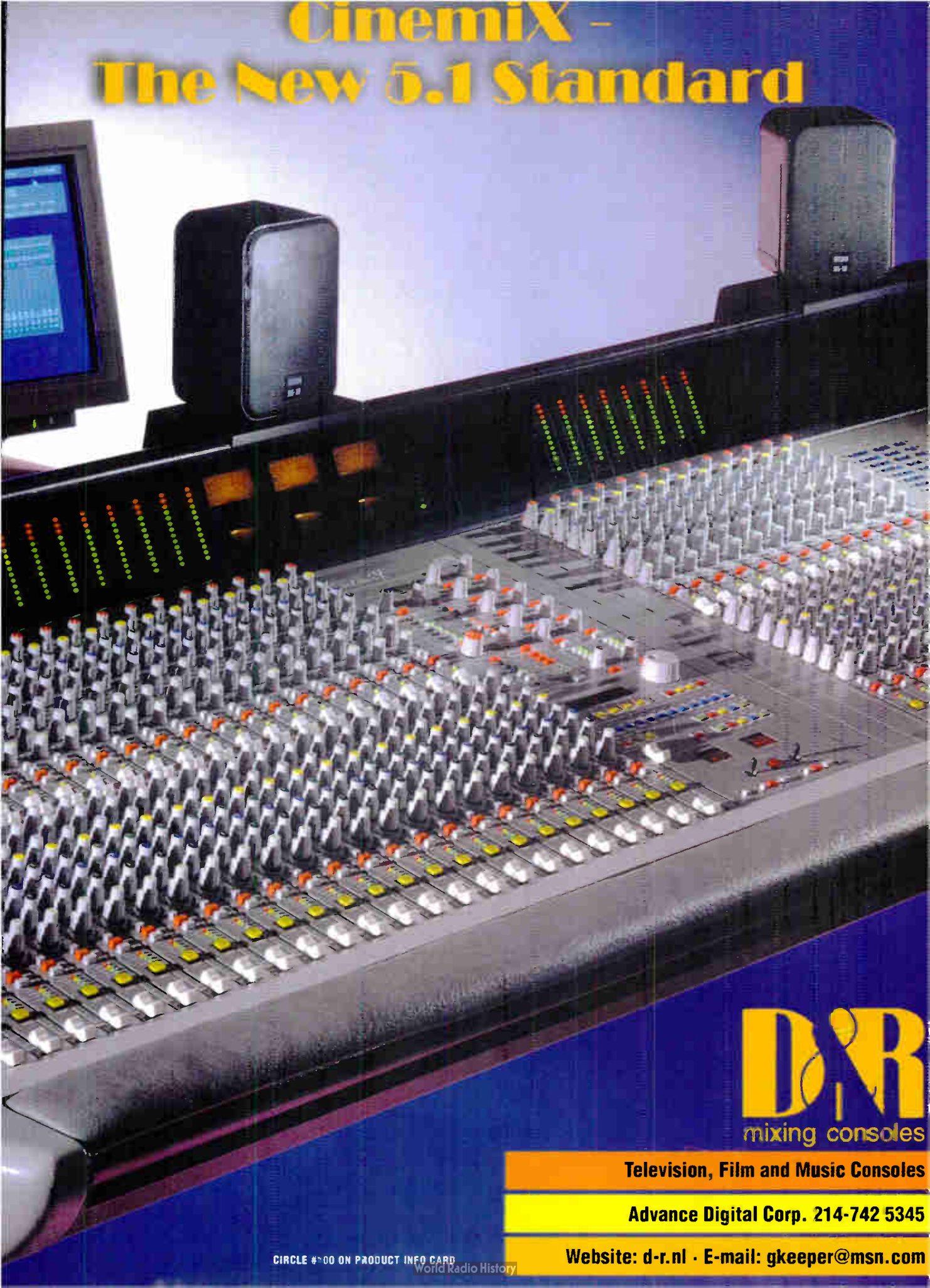
SMAART PRO's delay finder works without having to use a particular test signal, such as pink noise. It will calculate the delay between the reference signal and the microphone with just about any kind of program, including music! The software displays the exact distance between the test microphone and the array being tested, in both milliseconds and feet (Fig. 2). When asked to consult on a newly installed lawn system at Coral Sky Amphitheater in West Palm Beach, Fla., I was able to set three discrete delay times in a matter of minutes, using only my laptop, a few cables and a modestly priced measurement microphone.

Another interesting application of the delay finder is for accurately delaying the main left/right stacks in an arena rock concert setting. Delaying the left/right arrays to "align" with the drum kit and back line results in incredibly coherent sound in the first 50 or so rows. Instead of perceiving the main speaker stacks as the source of the band's sound, the audience is convinced that the sound is emanating directly from the stage. With SMAART PRO and the right monitor situation, the FOH engineer can optimize the audience experience daily, with very little time and effort.

TIME TO EQ

Once delay times are set, it is possible to EQ the sound system, a process very similar to that used with a conventional RTA and graphic EQ. However, unlike a conventional ⅓-octave RTA, SMAART PRO displays what appears to be an infinite number of data points as opposed to the dozen or so filters of a ⅓-octave analyzer. With frequency response displayed at high resolution, it is relatively easy to create complementary curves using a parametric equalizer.

I generally start EQ'ing a system by selecting five or six test microphone positions to represent different audience listening areas. If the sound system is split for controlled coverage of different zones, microphone positioning should allow for at least one measurement in each zone. Using the delay finder, align the reference signal (console output) with each test microphone's distance from the array. The transfer screen for each microphone position will show frequency response in the familiar magnitude vs.



frequency format (Fig. 3). SMAART PRO can store multiple different delay times in memory; the transfer function for each microphone position can be saved in any of the 20 available memory locations.

I usually check that the frequency curve characteristics confirm my subjective impression of the system. I look for frequency anomalies that match what I am hearing and correct any "out of the ordinary" nulls or nodes with EQ. The phase response window gives valuable insight into what is happening in the time domain as changes are made to the system frequency response (Fig. 4).

Once filters have been set for each section of the sound system, any or all of the curves may be overlaid on-screen, highlighting any frequency response variances in different parts of the room. Data is easily read due to integration of the fixed-point-per-octave function along with a smoothing function. This fixed point-per-octave resolution, unavailable in previous versions of SMAART, is a key feature in SMAART PRO. Another software feature allows curves in memory to be averaged and then displayed. Does it sound time-consuming? It's not, once you learn a few keyboard shortcuts.

No tool, hardware or software, will ever take the place of critical listening and common sense. SMAART PRO will not magically make you a good sound engineer or consultant. But today's large-scale sound systems contain so many signal processors that incorporate time correction and delay features, it is absolutely essential to have an analysis tool that integrates time and phase measurement into the EQ'ing process. SMAART PRO provides the audio professional with a sophisticated analysis tool for examining complex systems and can help tune that system quickly and accurately.

JBL Professional, 8500 Balboa Boulevard, Northridge, CA 91329; 818/894-8850; fax 818/830-7802. ■

Ted Leamy is a longtime employee of Electrotec Productions (Westlake Village, Calif.). His extensive touring experience both as a system engineer and project manager includes tours with Rush, Rod Stewart, Tom Petty & The Heartbreakers, Def Leppard and Nine Inch Nails. He can be reached at tleamy@aol.com.

TOTAL
IMMERSION

ex'treme sound and visual education

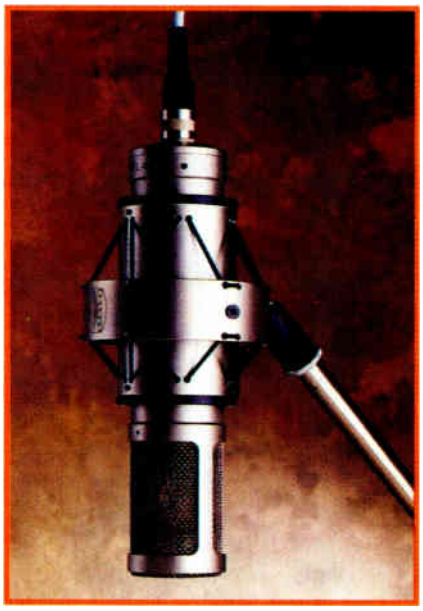
www.xnewmedia.com

CIRCLE #103 ON PRODUCT INFO CARD

DIRK BRAUNER VM1

VACUUM TUBE STUDIO CONDENSER MICROPHONE

A year ago, in Munich, I met a studio owner/engineer who had turned his passion for electronic design into a business called Dirk Brauner Röhrengerätemanufaktur ("tube equipment manufacturer"). Brauner is *very* serious about audio, and I was struck by the spectacular attention to detail in his VM1 microphone. Now that the



VM1 is available here, I wanted to check it out.

The VM1 system retails at $4,995, with mic, flight case, power supply, cable, shock mount and windscreen. The model number and logo are engraved into the 8.75-inch body, for an heirloom look that's akin to vintage Leica cameras. The mic has a large grille and two layers of steel mesh, beneath which is a hand-built, large-diameter, gold-sputtered capsule soldered directly to the control grid of a vintage Telefunken EF 806S vacuum tube. The amplifier uses a non-feedback Class A design, and in keeping with Brauner's minimalist approach, the VM1 has no internal filters or bass roll-off controls.

The power supply rear panel has an AC switch, standard IEC AC socket, Tuchel mic input, XLR mic output, and a three-position ground switch with a choice of ground lift, "hard" ground to XLR pin 1 or "soft" ground (routed through a capacitor). On the front panel is a bicolor LED indicating -10dB pad switch in/out. A continuously variable polar pattern control offers omni, cardioid, figure-8 and anything in between

Two large rings lock the VM1 into the shock mount, which is suspended with elastic cording. A long lever allows precise angle adjustments and a secure hold. This is appreciated, as the mic, mount and windscreen weigh in at 54 ounces! A clever—if slightly over-engineered—windscreen encircles the mic with a band of wide metal mesh/fabric screening. This must be taken off before inserting/removing the mic from the shock mount, but be warned that aligning the windscreen's two mounting screws with the shock mount might be dicey in dim studio lighting. The pop filter is acoustically transparent and does a good job of handling breath noises and plosives from close-miked vocals.

I plugged the VM1 in and listened to the familiar crackle of tube gear warming up. After 15 minutes, the mic settled in and I tried it on a narrator who specializes in strange character voices. This performer was somewhat disappointed by the accuracy of the VM1's faithful reproduction, as the mic exhibits minimal proximity effect in cardioid setting. Also on this session, I could distinctly hear an audible—though faint—clicking noise. It turned out I was hearing a small 2x2-inch travel clock, which we mount to music stands whenever a client is working under time constraints. Normally, these clocks are inaudible, even when placed next to vocalist's scripts, but in this case, the VM1 was reproducing clock ticks from eight feet away.

One reason for this detail is the VM1's exceedingly low noise: S/N ratio specs at 79 dBA; EIN is 13 dBA. This performance is exceptional for a tube mic, and here Brauner's attention to circuit design and quality components really shines.

The VM1 has a slightly rising top-end, and, on a duet with male and female vocals, it was just enough to add some sheen and clarity to the tracks without being overwhelming or harsh. On both male and female voices the VM1 was exactly what I needed, providing clarity, transparency and detail, with a balanced mix of lows, mids and highs, free of strange peaks or valleys. The mic's response is consistent in any polar pattern.

Over the period of a month, I used the VM1 on everything from amp stacks to viola, with superb results. The VM1 is wonderful on strings, either as a spot mic or at a distance from an ensemble. I liked the VM1's natural quality—just the right blend of rosin and bite. On percussion (temple blocks, triangle, congas and claves), the VM1 tracked transients perfectly with power and delicacy, while handling loud sources effortlessly. Speaking of high SPLs, the VM1 is ideal on horns and reeds, and captures punch without becoming shrill on sax, trumpet, trombone and French horn.

From its meticulous construction to its linear response and low noise, the Brauner VM1 is a major new contender in the field of world-class studio mics. Its natural sound and versatility will surely appeal to professionals in all areas of recording, from Foley and scoring work to pop and classical sessions. Anyone serious about state-of-the-art performance should give the VM1 a listen.

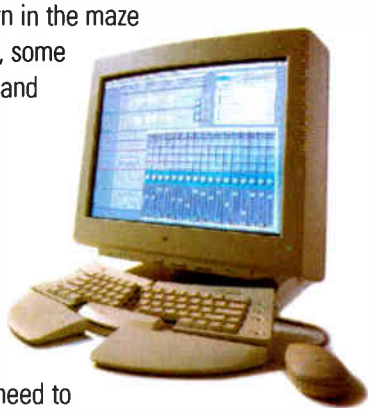
Distributed by Transamerica Audio Group Inc., 2721 Calle Olivo, Thousand Oaks, CA 91360; 805/241-4443; fax 805/241-7839. Also available through Studio Consultants, 321 West 44th St., New York, NY 10036; 212/586-7376; fax 212/582-2169. Web site: www.dirk-brauner.com. ■

BY GEORGE PETERSEN

This Way.

TEC 1997 Winner

Today's Digital Audio Workstation is an indispensible tool for Post Production, CD Premastering, and Music Production. With each new twist and turn in the maze of technological possibilities, some systems lead, others follow, and many fall by the wayside.



Through it all, one system has consistently emerged as the technology leader – delivering an impressive list of achievements that have taken our users where they need to be to stay ahead of the competition.

The Path To Success

Follow the path we've blazed in digital audio with achievements such as:

- Best Sound and Best Picture Oscar® winner *The English Patient* posted on Sonic by The Saul Zaentz Co.
- Emmy® award-winning NoNOISE® system for professional audio restoration
- First non-linear DAW for music production and CD premastering
- Sonic MediaNet™ - the first (and only) real-time network for media workgroups
- Sonic High Density Studio - the world's first multitrack 96kHz 24-bit audio system
- DVD-Ready™ - the first audio system to support all DVD formats (Dolby Digital, MPEG-2, PCM)

And as you find your way to the future – 96kHz and DSD High-Density Audio™, Surround Sound and DVD Audio – don't get stuck with yesterday's tools. Count on only one company to lead the way – Sonic Solutions.

Don't Get Lost in the Maze,
Get on the Right Path...with Sonic.

Contact us at our new DVD Audio Seminar Program

www.sonic.com

1.888.SONIC.4U

Sonic Headquarters 101 Rowland Way, Novato, CA 94945
tel: 415.893.8000 • fax: 415.893.8008
Sonic Europe tel: 44.171.287.0203
Sonic Pacific Rim tel: 81.3.5439.7171

SONIC SOLUTIONS

CIRCLE #105 ON PRODUCT INFO CARD

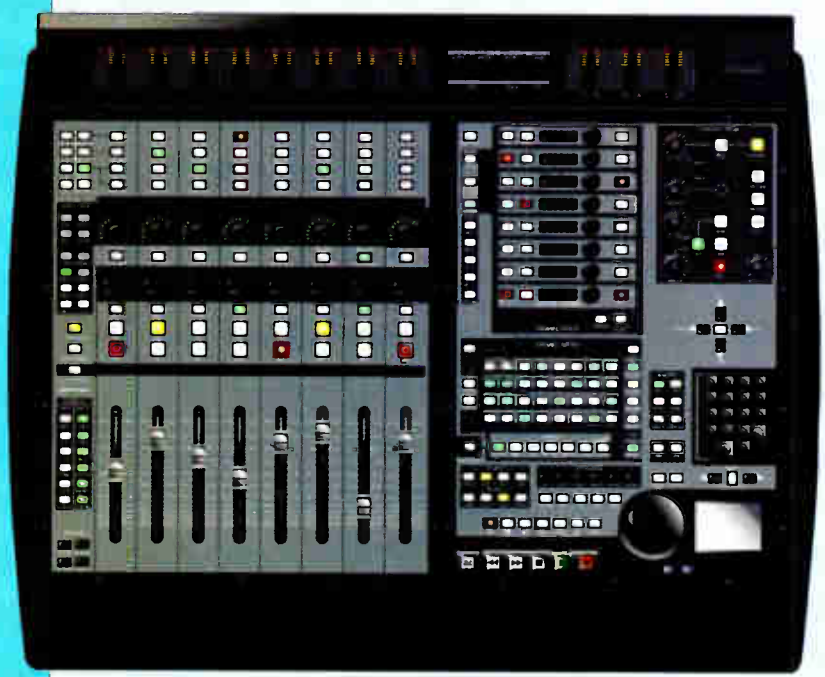
SEE US AT NAB SANDS BOOTH #S2338

DIGIDESIGN PROCONTROL

HARDWARE CONTROLLER FOR THE PRO TOOLS/TDM ENVIRONMENT

I can't think of a product that went through more incarnations and false starts than what has finally evolved into Digidesign's ProControl. In fact, the first version of this product (code-named Miles) dates back to the New York AES show in 1993, when Digidesign first announced its TDM bus technology.

In the intervening five years, computer prices have dropped, CPU power has soared, Pro Tools has matured, and TDM has blossomed from a neat concept to an industry of its own, with dozens of third-party companies offering TDM wares (mostly softwares). Now ProControl is finally here. Production units begin shipping within a month. It definitely works, and although five years is a pretty long wait, ProControl is certainly worth its targeted under-$10,000 price for the speed and flexibility it adds to a Pro Tools system.



First, forget those clunky previous versions: ProControl is sleek, fast and ergonomically logical. All communication between the controller and the host Pro Tools system is over a high-speed 10BaseT Ethernet link. The basic system has eight touch-sensitive moving faders that can control up to 128 channels of audio; expanders will be available in 8-channel increments. In addition to providing automated moving fader control with instantaneous recall of all parameters, ProControl adds familiar recorder-style transport keys, track arming/routing buttons, and a centralized section of controls for access to EQ, dynamics and DSP. A full meter bridge boasts 16 input meters, six output meters for 5.1 mixing and a large LED time display that can be set to show SMPTE timecode, real-time, samples, feet/frames or bars/beats/ticks.

The master control section is familiar and includes controls for talkback mic and headphone levels, main monitor level, dim/mute/mono switching, a choice of main mix or up to three alternate sources, and aux out controls for performer cue mixes. All audio I/O connections for the ProControl master section are made via three D25 subconnectors, which carry balanced +4dB signals in/out of the rear panel. Two ¼-inch footswitch jacks can be used for stop/play, punch-in/out or talkback on/off switching.

Perhaps the best thing about ProControl is that it allows the user to decide how best to work. Use a keyboard command, data wheel (doubles as a scrub/shuttle knob), touchpad or mouse—you pick the controls that match *your* style. ProControl also has dedicated keys to bring up commonly used windows, such as the Edit, Mix, Status, Transport, Locator or Plug-In screens. A similar topology is used for the Automation and Track Select/Assign commands, as well as the Undo and Save buttons.

Having spent far too much time groping for buttons in dark rooms, I appreciated ProControl's liberal use of back-illuminated keys and switches. They appear to be rugged and capable of withstanding abuse, especially as administered by a heavy-handed engineer hitting a solo or mute switch in a hurry. A total of 25 eight-character alphanumeric displays ("scribble strips") are used to show channel names, group affiliations, audio levels, plug-in parameters and more—just the thing in low-light environments, such as edit bays.

The patent-pending DigiFader™ moving faders are a clever design—there are no carbon or conductive-plastic tracks, wipers or D/A converters. Instead, a sealed

BY GEORGE PETERSEN

Feed Your Need

SOME LIKE THE PICTURES. SOME LIKE THE INFO. EVERYBODY LOVES THE LOW PRICES!

It's your FREE guide to more than 3,000 of the most popular music gear products at the best prices you'll find anywhere. Mixers, PA systems, keyboards, amps, guitars, cables, lighting packages... everything but the stage.

THE MUSICIAN'S FRIEND BEST PRICE GUARANTEE

- We match any PUBLISHED price before or after the sale
- 2-day express delivery
- 45-day money-back satisfaction guarantee
- Easy payment plan
- Credit cards accepted

FOR MORE INFO SEE THE WEB

CYBERSHOP 'TIL YOU DROP ONLINE AT: WWW.MUSICIANSFRIEND.COM

CALL 1-800 776-5173 NOW & GET THE BEST MUSIC EQUIPMENT CATALOG FREE!

❑ YES! Rush me the next 3 editions of Musician's Friend

Join hundreds of thousands of satisfied musicians in receiving the #1 music catalog, absolutely free! CALL: 1-800-776-5173. subscribe online at: WWW.MUSICIANSFRIEND.COM or mail this coupon to:

Musician's Friend, Dept. 76-002 • P.O. Box 4520 • Medford, OR 97501

NAME _____

ADDRESS _____

CITY _____ STATE _____ ZIP _____

CIRCLE #104 ON PRODUCT INFO CARD

optical encoder, motor and flex circuit provides 1,024 steps of fader resolution for rapid, precise movements that are essentially free of overshoot or ramp-up time. The DigiFaders are lightning-fast, with a nice feel, and are also immune to the smoke, dirt and other contaminants that beset conventional faders. I also liked the velocity-sensitive rotary encoders: The faster you turn them, the greater the parameter change.

ProControl allows the user to dynamically automate all parameters supported in the Pro Tools mixing environment, including level, pan, mute, send levels and plug-in parameters. Arming a channel for automation is as simple as enabling the control to be automated, selecting an automation mode (Write, Touch, Latch or Trim) and arming the channel(s) on which the automation pass will occur. Plug-in parameters can even be armed and automated directly from the ProControl surface, without having to open a plug-in automation window.

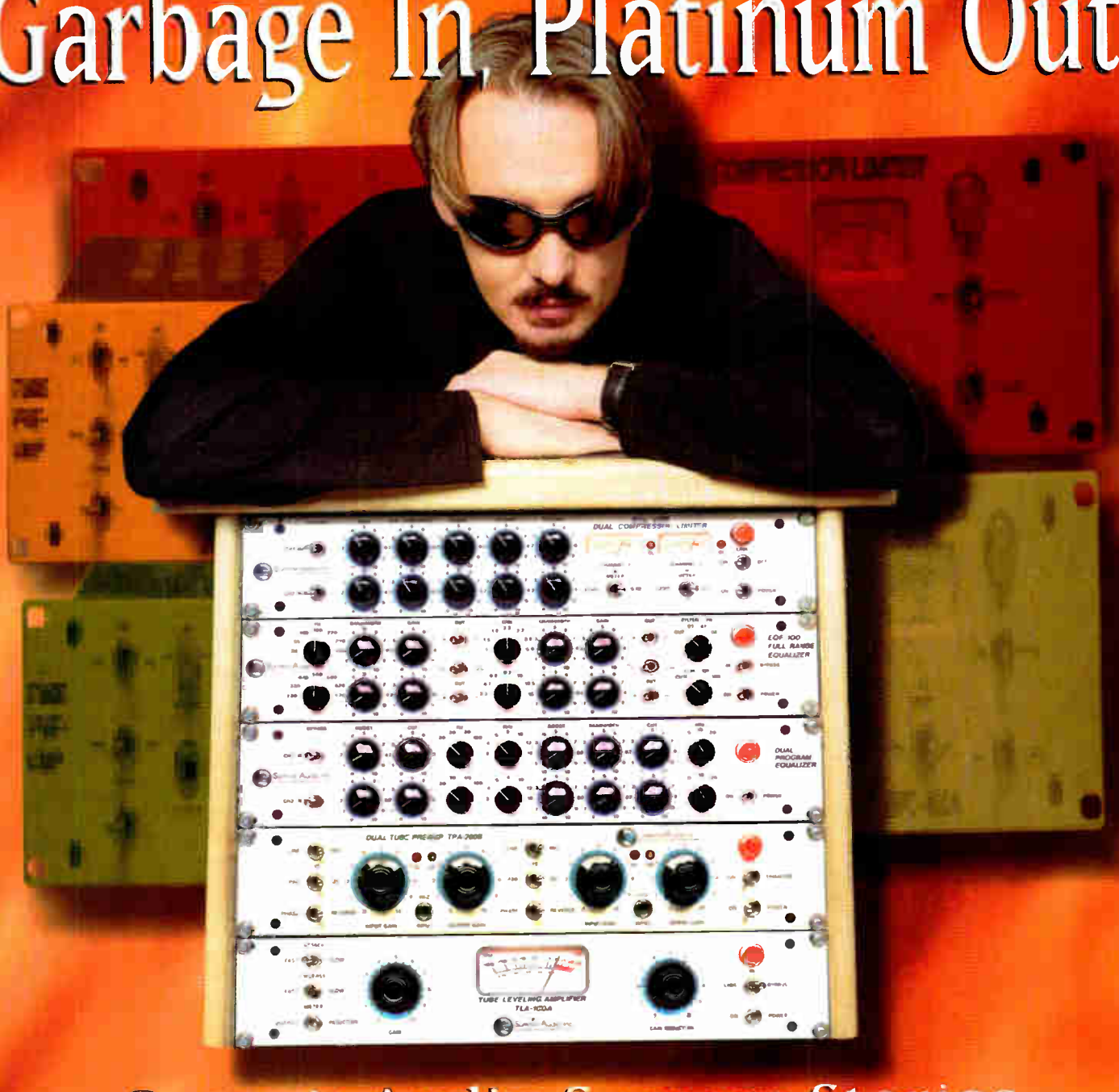
In addition to routing/patching duties, the channel matrix section serves several functions. By using the Status switches with this 4x8 matrix of 32 illuminated switches, the user can interrogate and change channel selects, mutes, solos and record arming without having to bank switch. Using the Go To and View switches, users can quickly locate any Pro Tools channel, which is particularly useful when working with a large mix configuration and keeps the user in the sweet spot while mixing.

ProControl has some curious features. For example, the unit has phase reverse switches, although the ability to flop the phase on individual channels is not yet supported in Pro Tools. There are some idle function keys, and MIDI I/O, which is provided for use by third-party developers, is not currently supported by Digidesign.

ProControl offers a lot, but at around $10,000—which is higher than several digital consoles on the market—it had better be good. However, in terms of the functionality it adds to a large Pro Tools system, ProControl makes sense for professionals who want to increase their production speed and creative options.

Digidesign, 3401A Hillview Ave., Palo Alto, CA 94304; 650/842-7900; fax 650/842-7999. Web site: www.digidesign.com. ■

Garbage In, Platinum Out



Summit Audio Success Stories

Butch Vig, engineer, producer, co-owner of Smart Studios and the drummer for Garbage, relies on Summit gear for all his work. Vig engineered the group's latest platinum album, "Garbage," nominated for three Grammys this year, as well as producing albums for Smashing Pumpkins, Nirvana, Soul Asylum and Sonic Youth.

"Whether I'm working at Smart Studios or I'm on the road touring, I always use Summit tube gear. I particularly like using the DCL-200 Compressor Limiter for tracking vocals. It colors the sound very subtly, while retaining its warmth and transparency. Often I will compress a vocal performance quite a bit. This allows me to place it exactly in the mix while maintaining a lot of presence and natural dynamics without sounding too loud. This works especially well when the mix is very dense."

"Summit just keeps coming out with great gear. We can't wait to get our hands on the new MPC-100A Mic Pre-Amp/Comp-Limiter. It is a high quality and great sounding input device that will further enhance our music."

Hear the Warmth.™

Summit Audio

Summit Audio, Inc. P.O. Box 223306 Carmel CA 93922 (408) 464-2448 Fax (408) 464-7659
www.summitaudio.com E-mail: sound@summitaudio.com

CIRCLE #139 ON PRODUCT INFO CARD

MACKIE DESIGNS HR824

HIGH-RESOLUTION ACTIVE STUDIO MONITORS

Mackie Designs has been, and remains, one of the primary players in the project studio revolution. Its 8-bus analog recording console is arguably the standard by which other small consoles are judged, and the company's new Digital 8-Bus console promises to be a strong contender in the burgeoning digital mixer market. In addition to mixers, Mackie has also produced the UltraMix automation system, the FR series of power amplifiers and the new HUI controller for Pro Tools. However, an active studio monitor is one product that most people probably didn't expect Mackie to make. Retailing at $1,498 a pair, the Mackie HR824 High Resolution Active Studio Monitor carries on the Mackie tradition of offering products loaded with professional and often innovative features, at a reasonable price.

Mackie spent a lot of time and money developing the HR824. Specialists were brought in to augment the design team, and very expensive new test equipment was purchased, such as an Ometron VPI4000 FFT analyzer. Mackie's goal was to create active monitors with an exceptionally flat frequency response, which would be flexible enough to operate optimally in any reasonable listening environment. To achieve this, the developers went back to square one and took a fresh look at all of the components involved.

NOW FOR SOMETHING COMPLETELY DIFFERENT

Perhaps the one thing that most distinguishes the HR824 from other monitors is how it handles the waves emanating from the rear of the woofer cone. Instead of using a port to extend low-frequency response, the HR824 employs a 6x12-inch passive radiator made out of a composite honeycomb

BY BARRY CLEVELAND

LAB ANALYSIS OF THE MACKIE MONITORS

by Mike Klasco

PHYSICAL CHARACTERISTICS

The Mackie Designs HR824 monitor's cabinet is solid, with ¾-inch MDF sides and back covered with vinyl laminate. Internally, an H brace between the front and rear baffles further increases rigidity. The front baffle is 1-inch thick MDF. No grille is provided, but a screen is integrated into the tweeter waveguide. The enclosure is stuffed with two blocks of open-cell foam. The drivers are recess-mounted flush into the baffle with an integrated die-cast tweeter waveguide/woofer trim ring. The front baffle of the enclosure has a "waveguide" profile, which provides some pattern control above 3 kHz and lessens "spill" onto the mixing board and adjacent surfaces. A large 6x12-inch honeycomb passive radiator is mounted on the rear baffle.

The woofer features a rubber surround and curvilinear poly cone. It has a bucking magnet to reduce stray flux and appears to be similar to a Vifa or Seas model used in another popular studio monitor. The flat spider provides more linearity than a cupped spider. The frame is cast (does not drain magnetic flux from the motor structure), and the motor structure (pole piece) is vented, which helps keep the voice coil cool and reduces power compression.

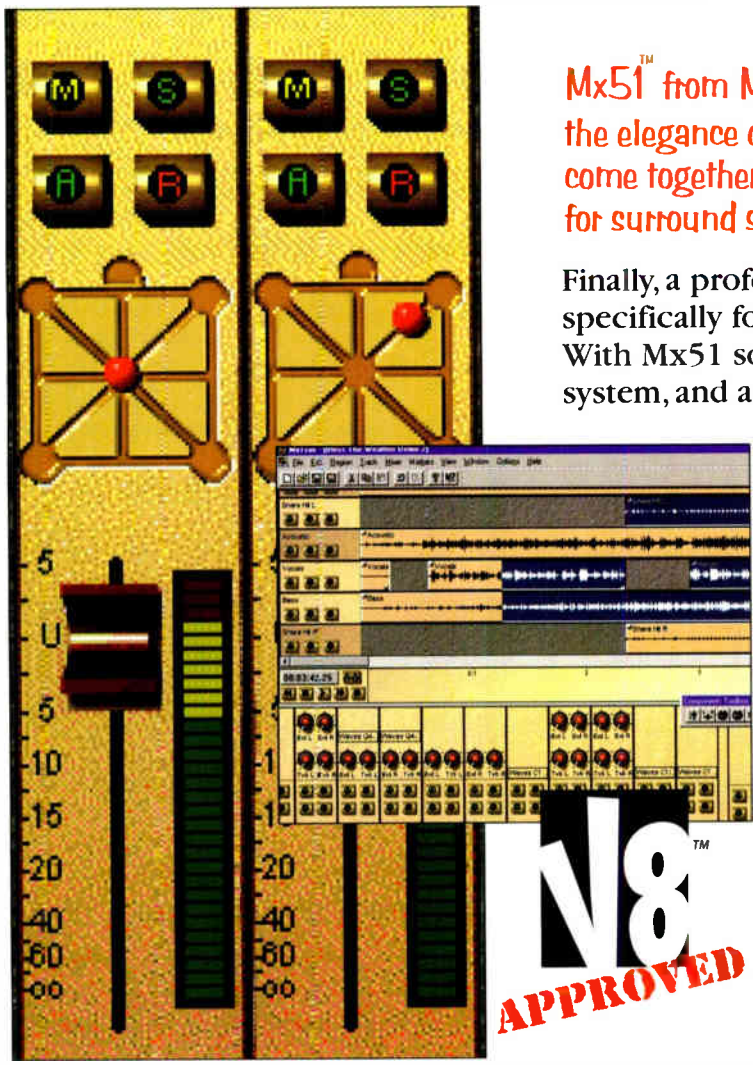
The aluminum dome tweeter with rubber compliance is a popular Seas model. The magnetic structure is ferrite and, like the woofer, has a bucking magnet to reduce stray flux. The voice coil is ferrofluid-cooled.

Line-level input is via balanced XLR and ¼-inch phone connectors; an input limiter reduces the chance of overdriving the system. Discrete amplifiers drive the woofer and tweeter separately, and equalization further linearizes frequency response. A rubber vibration isolator is positioned between the amplifier section and the cabinet, and a "low hum field" toroidal transformer is used in the power supply.

—CONTINUED ON PAGE 236

Mx51™

5.1 SURROUND THE EASY WAY



Mx51™ from Minnetonka Software; the elegance of MxTrax and the power of V8™ come together to deliver a revolutionary new tool for surround sound production.

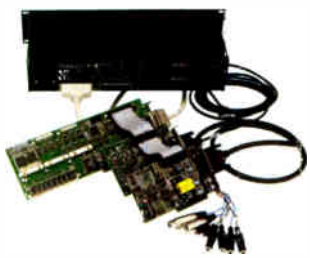
Finally, a professional audio workstation designed specifically for true multichannel format mixdown. With Mx51 software, a Digital Audio Labs V8 system, and a PC, surround mixes are a breeze:

- Individually pan each channel with Mx51's five way pan controls.
- View surround panning on all channels simultaneously.
- Dynamically automate all surround panning in real time.
- Automatic 5.1 bussing on V8's mixer.
- Easy-to-use adjustable subwoofer crossover

Plus get all the power of the standard MxTrax/V8 combination, including:

- 16 *true* hard disk tracks
- Drag and drop automated digital mixer
- True ADAT & DA88 integration*
- LTC and VITC video sync*
- Optional realtime 3rd party effects from the V8 audio gearhead partners

Breakthrough tactile interface lets you ***feel*** surround panning as you ***hear*** it.



Why the V8?

The V8 from Digital Audio Labs is a modular audio workstation platform for the PC. Systems can be configured with a choice of analog and digital I/O, MDM interfaces for ADAT and DA88, and realtime DSP options Contact Digital Audio Labs for information:

(612) 559-9098 www.digital audio.com

Minnetonka AUDIO SOFTWARE, INC.

17113 Minnetonka Blvd. • Suite 300
Minnetonka, MN 55345 • (612) 449-6481
www.minnetonkasoftware.com

*Some options require additional hardware.

Prices and specifications subject to change without notice.

CIRCLE #109 ON PRODUCT INFO CARD

material. This "mass-loaded flat piston" is mounted on the inside rear of the cabinet and radiates nondirectional bass energy, complementing the woofer. As far as I know, Mackie is the only manufacturer that has employed a passive radiator in a professional monitor design. The woofer itself has an 8.75-inch die-cast magnesium frame, a massive oversized magnet structure and a mineral-filled polypropylene cone. The other end of the frequency range is handled by a 1-inch high-frequency driver with a viscous edge-damped aluminum alloy dome and a ferrofluid-cooled voice coil. The driver is physically aligned with the woofer and works in conjunction with a huge, nonresonant, zinc exponential waveguide, which precisely controls high-frequency dispersion. Each speaker is individually calibrated by hand under lab conditions before being shipped.

Cabinets are made of ¾-inch MDF wood, with a 1-inch thick MDF front panel featuring radiused edges to reduce diffraction. An internal "H" brace contributes to rigidity, and internal reflections are absorbed by a foam-fill acoustic damping material. The integral power amplifiers and other electrical components are mounted on a large metal chassis, which is partially recessed into the cabinet. The external side of the chassis contains the HR824's various controls, as well as very helpful graphic representations of their functions. Audio inputs and the IEC power cord socket are located on the bottom of the chassis, exiting down, allowing the speakers to be flush-mounted against a wall without crimping any cables. Audio is input via balanced XLR or ¼-inch TRS connectors, which also accommodate unbalanced TS plugs. The jacks are wired pin 2/tip hot and connected in parallel, so they can be used for daisy-chaining to other speakers or amplifiers. Input sensitivity is adjusted from Off to Normal (+4 dBu) using a pot on the rear panel. Internal shielding reduces noise from outside sources.

The HR824 employs Mackie's FR (or Fast Recovery) amps. The low-frequency amplifier is rated at 150 watts into a 4-ohm load. The high-frequency amplifier is rated 100 watts into a 6-ohm load. Both amps operate at <0.035% THD, with a signal-to-noise ratio of >102 dB (referenced to 100 watts into 6 ohms). A modified 24dB/octave Linkwitz-Riley crossover operates at 1.8 kHz. The HR824s also feature overload and thermal protection. If the OL indicator on the front panel lights for an extended period, a very audible limiter automatically reduces input level. If they become too hot, a thermal protect circuit switches the amplifiers to Standby mode until they cool.

On the rear panel, there are four three-position switches: Acoustic Space, Low Frequency, High Frequency and Power Mode. The Acoustic Space switch adjusts the HR824's bass response to compensate for room placement. The Whole Space (Normal) position is recommended when the speakers are free-standing; the Half Space setting cuts -2dB at 100 Hz to compensate for near-by placement against a wall; and the Quarter Space position cuts -4dB at 100 Hz to compensate for corner placement. The Low Frequency switch inserts a steep roll-off at 37 Hz (Normal), 47 Hz or 80 Hz. The latter is used to simulate the limited low-frequency response curve of some small near-field speakers. The High Frequency switch boosts or cuts 2 dB at 10 kHz, in order to compensate for slightly bright or dull mixes. The Power Mode switch works in con-

CIRCLE #111 ON PRODUCT INFO CARD

CIRCLE #112 ON PRODUCT INFO CARD

CIRCLE #113 ON PRODUCT INFO CARD

junction with the power switch on the front panel. In its Off position the power amplifiers are placed in Standby mode; in the On position, the front panel switch controls power on/off; and in the Auto On mode, the amps turn off automatically when there is no signal present (-45 dBu minimum) for five minutes, and back on once the signal returns. When the speakers are powered up, there is a four-second delay while the power supply and circuitry stabilize.

LISTEN TO THIS

Mackie asserts that the HR824s are "smooth from 39 to 20k Hz (±1.5 dB)," and our tests corroborated the claim. This is no mean feat for monitors this size, and at this price. Though they may lack some of the openness and depth of field that I have experienced using much more expensive active monitors, there can be no question about their frequency response. You may or may not like what they have to say, but they speak the truth. They also have a wide off-axis listening range, due to the high-frequency dispersion of the waveguide. Nevertheless, I invariably got the best results while sitting in close, in a classic triangle relationship to them.

I used the HR824s while mixing a project by composer and slide-guitarist extraordinaire Carl Weingarten, whose music has been described as "world music with a science fiction edge." Weingarten combines guitars, bass, acoustic percussion, sequenced samples, ambient sounds, cello, sax and other instruments in complex, layered mixes. The HR824s performed admirably, allowing us to distinguish very fine shades of tonal color and to establish subtle timbral and harmonic relationships between sounds. When the mixes were played on other monitors, including some that cost more than twice as much, they translated very well. I also listened to quite a few CDs using the HR824s. I chose four particular CDs for my most concentrated listening, because they each presented a different sort of challenge: Jon Hassell's *City: Works of Fiction*, *Led Zeppelin III*, Charles Mingus' *Epitaph* and Cloud Chamber's *Dark Matter*.

I chose the Jon Hassell recording because of its extremely high and low frequencies, its use of sophisticated effects and the density of the mixes. The HR824s handled the ultra-low bass remarkably well, considering their size,

—CONTINUED ON PAGE 237

SOUND ADVICE.

"I highly recommend it." -Electronic Musician Magazine, Dec. '97

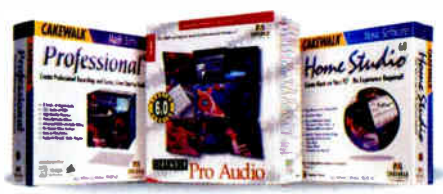
"Highly recommended." -Recording Magazine, Oct. '97

"At the head of the pack." -Keyboard Magazine, Sept. '97

"#1 Selling Music Software." -Music and Sound Retailer, Oct. '97

"Cakewalk, to me, represents the future." -Jon Anderson, *Yes*, Solo Artist

"My most essential tool." -Aaron 'Stipko' Stipkovich, Producer, Remixer-*Mayfield, K's Choice, Bloodhound Gang, 311, No Doubt*



1997 Post Magazine Professional's Choice

1997 Mix Magazine Technical Excellence and Creativity Award

1997 Music and Sound Award

1997 Boot Magazine's Kick-Ass Award

1996 New Media Awesome Award

#1 Music & Sound Software from $99 to $399*

The experts agree. Cakewalk is the hottest MIDI and digital audio software available. Used and recommended by more musicians and studio professionals than any other brand, Cakewalk is the #1-selling music and sound software. That's because Cakewalk delivers features you can't find anywhere else:

- Record, edit, mix, and master up to 256 tracks of digital audio and MIDI.
- Run simultaneous audio effects in real time with DirectX-compatible plug-ins.
- Control and automate studio gear.
- Export audio in RealNetwork's RealAudio format for streaming over the Internet.
- Protect your work with the stability of a native 32-bit application for Windows 95/NT.

Whether you're creating music and sound in the home or studio, Cakewalk has a solution that's right for you.

So, take some sound advice and pick up Cakewalk 6. Available at music and software retailers everywhere.

1.888.CAKEWALK

cakewalk

www.cakewalk.com

*estimated street prices

CIRCLE #114 ON PRODUCT INFO CARD

D.W. FEARN VT-2

DUAL-CHANNEL VACUUM TUBE MICROPHONE PREAMP

In the '60s, Douglas Fearn worked as a broadcast engineer at WPEN in Philadelphia. Later, when he opened a recording studio, he built his first mixer from 1940s-era RCA tube microphone preamps salvaged from WPEN's junk pile. Decades later, Fearn rediscovered some tapes he recorded on his original tube mixer and was struck by their warmth and vitality. Compelled to recapture that sound, he developed the 1-channel VT-1 and 2-channel VT-2 all-tube, Class A mic preamps based on the vintage RCA design. Today he hand-builds the VT-1s and VT-2s that bear his name, and to buy one is to buy a piece of Douglas Fearn, a perfectionist with a tremendous knowledge of audio engineering and music.

Each preamp is tested, with the results inscribed in the manual. The spec sheet for the unit I received revealed numbers as good as or better than those published on his promotional material. With two triodes and custom Jensen input and output transformers for each channel, the VT-2 supplies 53 dB of gain. Frequency response fluctuates less than 0.2 dB from 20 to 20k Hz with less than 0.2% THD and noise. With an EIN of -122 dBm, the VT-2 has a signal-to-noise ratio of 72 dB (unweighted).

However, the specs fall short of describing the VT-2's real-world performance. Compared to ICs or transistor designs that can distort with sudden harshness, tubes—particularly the single-ended triodes employed in the VT-2—distort more gradually and pleasantly, adding the even harmonics typical of acoustic instruments. In practice, the onset of distortion need not signal the end of headroom. Levels can be hotter, and the S/N ratio appears subjectively better than the printed spec. Furthermore, it is the VT-2's "virtual" headroom wherein lies its juice.

According to Fearn, the wide dynamic range and transients of microphones almost always overload preamps. Unlike less forgiving mic preamps, the VT-2 passes transients along with only minor and musical distortion. Indeed, I found the onset of distortion with the VT-2 more characteristic of a fine compressor than a distorting preamp, with subtle musical details slightly heightened rather than clipped.

Both the exterior and interior of the VT-2 are aesthetically beautiful and exceptionally solid. Its nostalgic, ¼-inch-thick faceplate is painted with Imron to a deep and glossy burgundy, with a symmetrical arrangement of VU meters, knobs and switches. Each channel includes an attenuator and switches for phase reverse, input level, 48V phantom power and meter on/off. A visual artist who recently visited my studio mooned over the VT-2 and noticed nothing else.

The input level knob has three settings: "0" connects the microphone signal directly to the input transformer; "-20" inserts a 20dB pad ahead of the transformer, and "Lo-Z" inserts an impedance-matching network, optimizing the VT-2 for use with ultralow-impedance mics from companies such as Neumann, Schoeps, B&K and Earthworks. This came in handy when using the VT-2 with a transformerless 50-ohm Neumann TLM193.

The VU meters—calibrated to the professional standard of "0" for +4 dBm—can be turned off when the user wishes to purposely distort the signal. Though occasionally pinning the needles does not damage them, it is nice to have the option of protecting them from bands who wished they came from Seattle. Turning the meters off also invites the engineer to fly with eyes closed and ears open.

Inside, the VT-2s are custom-built and wired point-to-point. The unit's size allows tubes to be positioned vertically, for more stable, longer-life operation. A large toroidal power transformer (strong enough to power ten VT-2s) runs conservatively to further ensure tube longevity. The VT-2 uses new, "old-stock," military-grade 6072a tubes, made by General Electric and similar to 12AY7s. Fearn tests each tube and grades them for noise. A removable top panel allows access to the transformers, tubes and power supply, and an enormous blue, computer-grade, high-performance Mallory filter capacitor.

BY ARTHUR BLOOM

Xwire announces the X905 Digital Wireless System

Xwire Corporation announces a breakthrough in wireless design: the X905 Digital Wireless System. It's the world's only wireless that's 100% free from the compromises of high-capacitance cables and analog wireless systems, assuring audio and musical professionals that what goes in is what comes out. Period.

Gone are the long cable runs that dull sound. Gone are analog compression and expansion schemes that color sound and introduce noise and distortion. An audiophile-grade 20 bit A/D converter captures the full dynamic range of instrument, line-level, or microphone sources and transmits them in digital format on one of five user-selectable UHF frequencies. The XR905 receiver decodes the signal via a precision 20 bit D/A converter, with quality matched only by plugging in directly with a premium patch cable.

Crystal-clear audio is just the beginning: the X905 is free from drop-outs, interference and multipathing. Four omni-polar patch antennas and two complete receivers are hidden behind the front panel of the XR905 receiver creating Quadiversity™ — two completely separate diversity systems working in tandem. A unique digital key identifies the transmitter's signal to the receiver, locking out all other sources of possible RF interference. The X905 system provides a minimum range of 100 feet under adverse conditions, 300 feet with clear line of sight.

Visit your authorized Xwire dealer and free yourself from excess cable without compromising your audio quality.

- **State of the art, 20 bit AD/DA converters**
- **Greater than 120db of dynamic range**
- **10hz to 20Khz frequency response**
- **No compander IC's or squelch circuit**
- **Unique digital key locks out interference**
- **Five user-selectable channels, up to five systems in simultaneous operation**
- **100 – 150 foot operating range under adverse conditions, 300 feet line of sight**
- **Receiver LCD shows operating channel, audio level, data percentages and battery life (in one-hour increments, 11 hours typical)**
- **Instrument and microphone systems available**
- **FCC approved, no license required**
- **Made in the USA**
- **Five year limited warranty**

Visit our website at www.xwire.com

See us at NAMM 98, booth 3324.

"The X905 should not be compared to other wireless units, it should be compared with your favorite cord."
Bass Frontiers magazine

"We specialize in recording full bands as live as possible, that means we often have amps spread out all over the facility. Xwire gets the signal where it needs to be without any line loss."
Dan Daniel, Chief Engineer, Laughing Tiger Recording

Xwire™

"X" your wire, not your sound!

Digital Wireless System

Xwire Corporation
4630 Beloit Drive, Suite 20, Sacramento, CA 95838
Voice (916) 929-9473 Fax (916) 924-8065 Internet www.xwire.com

Call now to reserve your free copy of our upcoming demonstration CD which will feature cable and wireless comparisons, great music and more.

CIRCLE #115 ON PRODUCT INFO CARD

To assess the VT-2's performance, I solicited the opinions of other engineers. First I lent the demo unit to Jon Russell who owns Presence Studios in Westport, Conn. (featured on the cover of *Mix*'s October '96 issue). Russell felt that, compared to his Tube Tech mic pre, the VT-2 had a more imposing personality. He thought it worked particularly well with vocals and power guitar, and it made his AKG 414s sound more full-bodied and luxurious. However, he was less enthusiastic about its use for recording percussive instruments, including piano. He was bothered by what sounded to him like "a subtle proximity effect" at times when he desired utter transparency.

Next, I lent it to producer/engineer Vic Steffens who owns the Horizon Music Group in West Haven, Conn. First, he used it with two Coles 4038 figure-8 ribbon mics in a Blumlein array to record a gospel choir and band. Steffens said it sounded "fabulous" and that it gave the mics a lot of "space." Compared to other tube preamps he has used, he was particularly impressed with the VT-2's low-mids, which were solid and well-defined, without "tubbiness."

Steffens also used the VT-2 with a matched stereo pair of AKG C12VR tube mics in spaced omni to record another gospel choir. He characterized the combination of the C12s with the VT-2 as "stupid good!" He preferred using the VT-2 with the C12s over the Coles due to the C12s' superior articulation and brighter sound.

While Steffens expressed concern about assimilating the VT-2's lush output into a large, multitracked mix, he felt that it would be perfect for what he called "hi-fi, full-bandwidth, minimal miking" sessions.

Indeed, "hi-fi, full-bandwidth, minimal miking" describes Andy Smith's approach to recording Paul Simon's latest record, *Songs From the Capeman*, a recording for which Smith relied on a VT-2 for everything from vocals to piano, strings, flute, cello, trumpet and guitars. Although he recorded in The Hit Factory (aka "equipment heaven"), Smith kept the recording chain as short and pure as possible. Bypassing the console, he used the VT-2 with an AKG C24, a Sony C800G, a Telefunken Elam 251, Neumann TLM50s and TLM170s, and B&K 4011s and 4007s.

Compared to the other high-end preamps he tried, Smith preferred the

Best Mics on Record

Extra large 1.5 inch hand tooled solid brass capsule!

Extra thin 3 micron gold evaporated Mylar diaphragm precisely tensioned by hand for close matching of capsules, within 1 dB!

Specially developed, custom tooled shock absorbing capsule mounting system using patented Sorbathane material.

Our unique and specially designed dual stage Mu follower circuitry offers extremely low distortion specifications from the preamplifier section, typically less than .03% THD!

Specially made and hand selected Groove Tubes 6201M dual triode offers rich tone with lowest possible self noise, broad frequency response and wide dynamic range.

Specially designed pure nickel core Cinemag output transformer hand wound by Tom Richenbach offers lowest distortion specs possible!

Only high tolerance passive components are used in GT's unique tube circuitry designs!

Internal polarization voltage regulator allows precise capsule matching for stereo pair applications.

GT's unique sensitivity control allows for capsule sensitivity reduction in 10 stepped positions of 2 dB for a possible 20 dB total reduction, capable of recording signals up to 150dB SPL!

Groove Tubes
12866 Foothill Blvd. • Sylmar, CA 91342
Tel: 818-361-4500 • Fax: 818-365-9884
www.groovetubes.com
e-mail: GrooveTube @ AOL.com

Each GT PS2M power supply can support any two GT tube microphones with 100% isolation. Just one supply works for Stereo and/or MS recording!

CIRCLE #118 ON PRODUCT INFO CARD

VT-2 for what he described as its "superior clarity, transparency and presence." He explained that the VT-2 allowed him to use virtually no EQ and minimal compression.

Indeed, the VT-2 blessed any vocal sent through it and minimized the need for EQ and compression down the road. I was also impressed with the ease with which it handled difficult-to-record acoustic instruments such as solo oboe and Celtic harp.

I recorded oboist Libby Van Cleve performing "Whistle Stop" by contemporary composer Scott Lindroth. The oboe itself is so full of harmonics that it was impossible to tell where the oboe ended and subtle distortion from the VT-2 began. On tape, the oboe sounded just a tad thicker and darker than live. I used an AKG 414 TLII placed at the bell and a Neumann TLM193 placed over the top of the second joint—run through the VT-2 and direct to DAT. Bypassing the console, you could touch the sound.

When recording Julia Cunningham playing Celtic harp, going direct from the VT-2 into the DA-P1 at line level—using a TLM193 in front of the soundboard and a 414 TLII behind it—percussive transients and bell-like sustains came alive. At the end of the session, Cunningham commented that she preferred the sound of the recording made with the VT-2 to what she hears when she is playing her harp live.

Although you might not want to use it in every situation, the VT-2 is by no means an effects box masquerading as a preamp. Rather, it is an exceptional implementation of vintage tube technology in a mic preamp. At $3,500, the VT-2 is also one of the more expensive microphone preamps in production. However, its price buys more than high-quality sound. It's rugged, built to last, and built to *use*. If recording is your bread and butter, the VT-2 is pure butter. The VT-1 is $2,000, and an optional 2-channel line pad is $80.

D.W. Fearn, PO Box 57, Popcopson, PA 19366; 610/793-2526; fax 610/793-1479. Web site: www.dwfearn.com. ■

Arthur Bloom's orchestral compositions have recently been performed by the Tulsa Philharmonic and the Albany Symphony Orchestra. He can be spammed at ArthurBloom@compuserve.com. Thanks to Jon Russell, Vic Steffens, Andy Smith, Julia Cunningham, Libby Van Cleve and Karl Winkler of Neumann, USA.

PORTABLE ONE DUAL DOMAIN

Digital+Analog+Interface Audio Test

True Dual Domain Audio Testing at an Attractive Price Point

The Portable One Dual Domain is the complete portable test solution for analog and digital audio and the AES/EBU/SPDIF serial digital interface. As the first portable Dual Domain® audio analyzer, it includes separate and independent hardware for analog, digital and interface signal generation and measurement.

- Comprehensive analog audio analyzer
- True digital domain analyzer with -140 dB residual noise
- Independent analog & digital audio generators and analyzers
- Generate and measure interface jitter
- Digital interface analyzer
- View AES/EBU status bits
- Internal save and recall of 30 test setups
- Loudspeaker monitor for digital & analog audio signals

Audio precision

PO Box 2209
Beaverton, Oregon 97075-3070
Tel: (503) 627-0832 Fax: (503) 641-8906
US Toll Free: 1-800-231-7350
Email: sales@audioprecision.com

Our worldwide force of Audio Precision representatives will be pleased to demonstrate the many advantages of the Portable One Dual Domain

PREVIEW

JBL BI-AMPED MONITORS

JBL Professional (Northridge, CA) releases its LSR28P Linear Spatial Reference Bi-Amplified Monitor System, a powered, full-frequency (37 to 22k Hz, ±6 dB) studio monitor with an 8-inch woofer and 1-inch titanium-composite diaphragm HF driver. Features include a dual-coil woofer with an additional third coil that prevents over-excursion via dynamic braking. A custom HF waveguide ensures even 60 x100 coverage; a carbon fiber composite baffle lowers cabinet resonances. Integrated power amps drive the LF and HF drivers (200 watts and 70 watts, respectively), and active circuitry includes level and frequency response adjustment controls. The LSR28P retails for $995 each. A complementary LSR12P powered subwoofer covering 25 to 110 Hz (±6 dB) is $1,095.

MACKIE M•1400i AMP

Mackie Designs (Woodinville, WA) announces the M•1400i amp in its FR Series. A 2-channel, two-rackspace M•1400i delivers 300 W/ch into 8 ohms and 1,400 W into 2 ohms (bridged mono).

Features include three LED status indicators per channel (Standby, Cold and Hot), a short-circuit warning LED, clipping eliminator circuitry, sweepable highpass filter and a switchable lowpass subwoofer crossover. Inputs are XLR and ¼-inch, outputs are ¼-inch and binding posts. Price: $599.

Circle 327 on Product Info Card

TAYTRIX STACKABLE GOBOS

Taytrix (Jersey City, NJ) offers the Stackit gobo system, a modular range of lightweight acoustical control components that may be easily stacked, linked and moved to create a variety of screens, hutches, booths and dividers. Tops and bottoms interlock to make sturdy, movable walls; rounded ends allow horizontally linked segments to be swiveled. Measuring 46 inches long, 8 inches deep and either 16 or 32 inches high, units are available with absorptive or reflective maple surfaces or with ¼-inch Plexiglas panels. Available in five fabric colors, the units may also be ordered in custom colors and heights.

Circle 328 on Product Info Card

TRUE 8-CHANNEL MIC PRE

The Precision 8 from TRUE Audio Systems (Tucson, AZ) offers eight channels of microphone preamplification in one rackspace. The unit includes switchable M-S decoding on the first two channels for Mid-Side stereo recording, and offers two additional FET instrument inputs (DIs) on channels 7 and 8. Each channel features a rotary gain control, five-segment peak hold LED metering, overload warning LED, and 48V phantom power and polarity-reverse switches. A master Peak Reference control adjusts metering to match console or recorder. Rear panel inputs are Neutrik XLR and XLR/TRS Combi (ch. 7, 8). Outputs are balanced TRS and DB25 multipin. Price: $2,495.

Circle 329 on Product Info Card

KRK V8 SHIELDED MONITOR

KRK Systems (distributed by Group One Ltd., Farmingdale, NY) introduces the V8 Shielded Monitor, a self-powered, bi-amplified studio reference monitor. Featuring video shielding, the V8 includes an 8-inch Kevlar woofer and a 1-inch silk tweeter, both driven by internal amps. The system is capable of producing up to 108 dB SPL. Frequency response is 49 to 22k Hz, ±2 dB, and crossover is at 1.6 kHz. Price: $1,249/pair.

Circle 330 on Product Info Card

BERTSCH HARD DISK RECORDER

Bertsch (Quesnel, B.C.) debuts the DPR 8 and DPR814 Dynamics Processing Recorders, 8-track hard disk recording systems based on internal and/or removable hard drive media. Featuring a 44.1kHz sampling rate and 18-bit DACs, the DPR-8 and DPR814 offer eight virtual tracks and compression, gating, ducking on each channel, plus two sidechain inputs for de-essing and voice-over applications. The DPR814 includes an internal digital mixer with 3-band EQ per track, plus four aux sends and master outs, for a total of 14 outputs. The DPR8 has ten outputs, including a stereo monitor mixer. Removable hard drives are available (1.5GB provides 34 minutes of 8-track recording), and up to 8GB internal hard drive configurations are available for three hours of 8-track recording time. The DPR 8 supports MIDI; options include SMPTE and TDIF interfaces. I/Os are balanced TRS (outputs are switchable +4 or -10). Price depends on format, from $2,939 (3.2GB) to $3,400 (8GB).

Circle 331 on Product Info Card

AARDVARK SYNC DA

The Sync DA digital clock distributor from Aardvark

PREVIEW

(Ann Arbor, MI) can clock an entire digital audio studio, providing jitter-free word clock for up to six devices. The half-rackspace unit accepts word clock and AES/EBU audio signals for clock inputs, and it outputs five word clock and one 256 Superclock signals, plus AES/EBU for facilitywide distribution. Front panel LEDs display exact sample rate. Price: $795.

Circle 332 on Product Info Card

DANE DE-ESSER

Dane De-Esser Company (Tulsa, OK) offers Optical De-esser #31, a single-channel, half-rack unit that uses an opto-isolator instead of a VCA for gain control. Specs include 90kHz frequency response. Front panel controls include sibilance reduction rotary pot and a three-position sidechain detection frequency selector; a switch selects operating range. I/Os are balanced XLRs, and the unit has an internal power supply. Price: $500, including shipping.

Circle 333 on Product Info Card

SYMETRIX DUAL PARAMETRIC EQ

Symetrix (Lynnwood, WA) releases the 552E dual 5-band parametric equalizer, a two-rackspace unit derived from the 551E single-channel EQ. Features include high-pass and lowpass filters and five fully overlapping EQ sections per channel, covering a frequency range of 10 to 20k Hz, along with individual channel bypass switches. Each EQ section offers individual control of center frequency and Q, and +12 dB of boost, -20 dB of cut. I/Os are ¼-inch TRS and XLR. Price: $749.

Circle 334 on Product Info Card

HOT OFF THE SHELF

SyQuest Technology's SyJet 1.5GB removable cartridge hard drive is qualified for use with Digidesign's Pro Tools|24. Call 510/226-4000 or visit www.syquest.com... **QSC's RAVE Application Guide** assists in implementing the RAVE (Routing Audio Via Ethernet) networking products. Call 714/754-6175 or visit www.qscaudio.com...Music Industries Corp., distributor of Quik-Lok® Stands, now manufactures/distributes **Invisible® Keyboard Stands.** Call 516/352-4110 or visit www.musicindustries.com... **E-mu Systems is shipping EOS 3.0,** the latest software version for the Emulator IV line of products. New features include a 48-track sequencer, advanced performance control, new modulation sources and destinations, and a new preset editor. Call 408/438-1921 or visit www.emu.com...The latest catalog from **MCM Electronics** features more than 4,000 products, including test equipment, connectors, accessories, semiconductors and audio stuff. For a free catalog, call 800/543-4330 or visit www.mcmelectronics.com...TRF Production Music Libraries offers **The 1998 Bosworth Production Music Library,** a catalog of production music CDs. To order CDs on approval, call 800/899-MUSIC...**The Array Seminar Video,** a tape of an EVI presentation on loudspeaker arrays recorded at NSCA Expo '97, is available for $25 plus shipping. Call 800/685-6386...**Fiber Options'** new Web site at www.fiberoptions.com offers online access to data sheets and catalogs, with Adobe Acrobat downloads available; select literature has been translated into Spanish...**Quantegy** debuts two new lines of analog cassettes: Quantegy AVX Professional Audio Cassettes (normal bias) and Quantegy IRC Instant Record Cassettes (magnetic leader). Call 770/486-2800...**Netwell Noise Control's Silence Acoustical Wallcovering** is a Class-A fire-rated woven polyester fabric available in 24 colors. Sold by the linear yard or in 50-yard bolts, the material boasts an NRC value of 0.65. Call 800/638-9355... ITT Pomona Electronics has introduced **cost-effective, high-performance oscilloscope probes.** Designed to specifically match the oscilloscope bandwidth, the new probes feature bandwidths from 30 to 300 MHz, priced from $45 to $92. Call 909/469-2900 or visit www.ittpomona.com... The Series M372 mini-rocker switch from **ITW Switches** handles high-inrush currents of up to 200A without a snubber circuit. SPDT and DPDT versions, it handles up to 250 VAC. Call 800/544-3354...The Unitone™ module from **Industrial Acoustics Company** is a one-piece sound absorption panel, with integral mounting hardware. Call 718/931-8000 or visit www.industrial-acoustics.com...**Cirrus Logic** has licensed QSound Labs' QSurround Virtual Speaker Technology and integrated it into the Crystal™ CS4924 Dolby Digital Source Decoder chip. And CL's new CS4926 single-chip DSP decoder supports both Dolby Digital AC-3 and DTS Digital Surround. Call 512/912-3823...**Clark Wire & Cable's** SPA22GS single-pair audio cable and 800 Series digital audio snakes are now CM-rated for reliability and safety. Call 800/222-5348 or visit www.clarkwc.com. ■

SOFTWARE AND HARDWARE FOR AUDIO PRODUCTION

SYQUEST 4.7 GB DRIVE

New from Syquest (Fremont, CA) is the Quest 4.7 removable cartridge drive, designed specifically for audio and video pros. The Quest drive integrates dual-stripe magneto-resistive recording heads for increased data storage density, and features a 2MB cache buffer and UltraWide SCSI interface for a maximum data transfer rate of 10.6 MB/sec, with an average seek time of 12 ms. The list price of $599 includes an internal drive and one 5.25-inch, 4.7GB cartridge; additional cartridges are $199. All Windows, Mac and UNIX platforms are supported.

Circle 335 on Product Info Card

SECOND WAVE PCI EXPANSION CHASSIS

The Xpanse P Series from Second Wave (Austin, TX) are external expansion chassis systems for PCI-based Macintosh and PC platforms. Each Xpanse P system includes the Second Wave PCI-to-PC interface card (which occupies a PCI slot in a PCI-based Power Mac or PC), an 80-conductor interface cable and an external chassis. The Xpanse P700D, P700T and P700R chassis contain a backplate with seven PCI slots, a power supply, cooling system and disk drive bays for mounting 5.25- and 3.5-inch drives. Xpanse P700D is a desktop model, Xpanse P700T is a mini-tower, and Xpanse P700R is rackmount. Prices start at $895; NuBus and PCI-to-NuBus expansion systems are also available.

Circle 336 on Product Info Card

SONIC FOUNDRY SOFT ENCODE

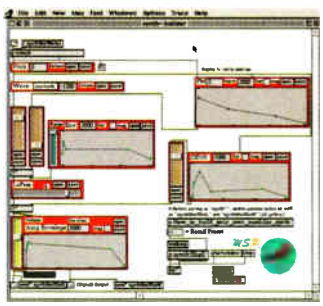
Sonic Foundry (Madison, WI) introduces Soft Encode, a stand-alone Windows application providing Dolby Digital (AC-3) encoding for multichannel audio delivery. The software is available in either a 5.1- or 2-channel version; both offer full support for standard encoding options and multiple encoding modes. Features include waveform display and graphical track position editing, Dolby Digital file verification, project file saving for maintaining multiple sessions and batch conversion. Raw PCM and .WAV files are supported, as are multiple sample rates.

Circle 337 on Product Info Card

SYNTRILLIUM COOL EDIT PRO 1.1

Syntrillium Software (Phoenix) offers Version 1.1 of its Cool Edit Pro digital audio recording/editing/mixing application for Windows. The update offers faster DSP, improved SMPTE support, larger file-handling capacity than in Version 1.0, and includes new features such as waveform grouping and Vocoder and Envelope Follower functions. Version 1.1 also offers broader compatibility with third-party DirectX plug-ins and supports real-time preview of DirectX effects. Retail is $399; V.1.0 users can download a free upgrade from www.syntrillium.com.

Circle 338 on Product Info Card



CYCLING '74 MSP

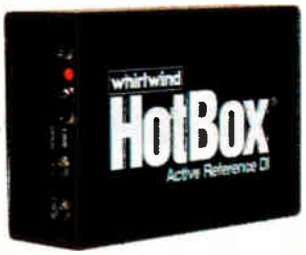
Cycling '74 (Santa Cruz, CA), founded by former Opcode programmer David Zicarelli, introduces MSP, a set of extensions to Opcode's MAX 3.5 graphical programming environment. MSP is made up of more than 60 graphical objects that synthesize, process and analyze audio signals in real time on a Power PC. These objects may then be arranged and grouped to create custom applications to enhance the power of the MAX environment. C programmers can create their own objects to add to the collection. A trial version is available at www.opcode.com; a fully functional system costs $295.

Circle 339 on Product Info Card

UPGRADES AND UPDATES

Adaptec Toast Version 3.5.5 offers DVD support and Mac OS8 compatibility. Call 408/945-8600 for info...**Media 100** intros Version 4.5 of its digital video system, featuring professional, real-time audio editing capability. Visit www.media100.com...**E-mu** (www.emu.com) announces the **Orbit/Phatt Sessions SoundROM** Emulator upgrade, a 16MB SIMM featuring 256 sounds from the Orbit and Planet Phatt sound modules. In addition, E-mu is shipping ESI 3.02 software, featuring 18 new filters and improved Iomega support...**DUY** announces plug-in support for the Mark of the Unicorn Audio System (MAS). Visit www.duy.es...**Microboards** is shipping the Desktop CD-R Publishing System, which includes a 4x recorder, the CEDAR autoloader, CD holders and editing software. 612/470-1848...**Pocket Fuel** (www.pocketfuel.com) debuts the RADS Vol. 1 CD-ROM, a collection of interactive CD-ROM loops: combine kick/snare loops and cymbal patterns to create unique rhythmic loops. The ID grid filing system enables users of any level to assemble tracks, choosing from more than 900 sound files...Symbolic Sound offers a free **Kyma 4.5 audio demo** on CD; also, Kyma now runs on a Mac Powerbook or Windows laptop, thanks to a new PC card; call 800/972-1749 for details. ■

THE GOOD STUFF.



Professionals rely on industry-standard tools from Whirlwind to protect each performance and recording from the frustrating failures and poor sonic results of second-rate components. Built to provide consistent superb results through years of tough use, these products are what sound specialists buy when they can buy what they want — *the good stuff.*

The Hot Box™ is Whirlwind's top-of-the-line DI for sending your pure guitar sound direct to the mixer. The ultra-high input impedance, super-wide bandwidth and vanishingly low noise mean you won't find better sonic performance anywhere.

The MD-1™ is a battery powered studio-quality mic preamp with a transformer isolated line driver output and a built-in headphone monitor. The heavy steel box, 18V phantom power and transformer isolation make it a favorite with sports broadcasters.

The Director® is a premium quality DI box with an input select for instrument or amp/preamp, a ground lift switch, and a filter to roll off amp noise.

The IMP® 2 brings a high-quality DI to musicians on a budget. Rugged, good sounding, with a ground-lift switch.

The MicPower® is a convenient portable phantom power supply that operates from two standard 9V batteries to power condenser mics.

High Performance PM Tubes® are manufactured for Whirlwind using the latest techniques and specialty metals. If you own a tube amp or effects device, listen to the difference these tubes will make.

The Mic Eliminator® is a specialty DI that takes your direct guitar, amp, or preamp signal, and adds the clean sound of a classic SM57 + Jensen 12" mic + speaker setup for that famous "miked" sound without the mic.

The Qbox® is an all-in-one battery powered audio line tester. It includes a built-in mic, speaker, tone generator, headphone amp, and voltage detect LEDs for verifying phantom or intercom power.

The Selector® switches one instrument to two inputs or two instruments to one input using a patented totally silent Whirlwind switching circuit.

The Tester is the industry's favorite continuity tester, detecting shorts, opens, or cross-wiring on cables with virtually any combination of XLR, 1/4", and RCA phono connectors.

whirlwind™

99 Ling Rd. • Rochester • NY • 94549 • TOLL FREE 888.733.4396 • FAX 716.865.8930 • http://www.WhirlwindUSA.com

CIRCLE #122 ON PRODUCT INFO CARD

This will be the most imitated speaker on the market.

Again.

Eighteen years ago, Meyer Sound rocked this industry by introducing the most sophisticated loudspeaker yet--The UPA-1 featuring the first trapezoidal cabinet (US patent # 271,967) and the first professional loudspeaker with dedicated control electronics*. It was eventually imitated by almost every other loudspeaker manufacturer.

Today, the Self-Powered UPA-P radically improves upon its classic predecessor by perfecting every aspect of loudspeaker design: High SPL, low distortion, high efficiency, linear response, precise coverage, consistent performance, and unbeatable convenience.

The new UPA-P is a revolution. Only the progressive thinking and uncompromised engineering of Meyer Sound could produce a system this powerful, this flat, this compact.

- Flat phase response +/- 35 degrees from 600Hz to 16 kHz. Great response for a studio monitor, unheard of in a high power PA product... until now.
- An integrated, powerful 2-channel amplifier for over 1000W peak power (350 Watts/channel). No amp racks, no complex and costly wiring, less truck and storage space, faster installation time.
- 133 dB peak SPL at one meter.
- A new constant directivity CQ™ horn, the culmination of years of research in our own anechoic chamber, guarantees the most accurately defined high-frequency coverage (Pat. pend.)
- Only 77lbs total weight.
- An Intelligent AC™ system that automatically adjusts to the operating AC line voltage from 80 to 265 VAC.
- CE and UL Approval.
- Do the math. The Self-Powered Ultra Series is surprisingly affordable and costs substantially less than conventionally amplified systems.

UPA-1P

The Self-Powered Ultra Series

You owe it to yourself and your business to hear this system

Meyer Sound

Meyer Sound Laboratories, Inc. - 2832 San Pablo Avenue - Berkeley, CA 94702-2204 - (510) 486.1166 - fax (510) 486.8356 - www.meyersound.com

*John Meyer holds numerous patents including a low distortion driver/horn combination which is utilized in the UM-1P, and one for the perfectly aligned phase response through crossover (zero-pole crossover) utilized in both the UPA-P and UM-P.

POWER AMPS

WHAT THE SPECS REALLY MEAN, PART 2

[Note: Last November, when Paul Ierymenko wrote an article on power amplifier specifications, we had no specific plans for a second part. However, there are numerous other points concerning amplifier performance that merit further discussion, such as understanding output power or questioning the need for amplifier slew rates that exceed the speed an HF driver can vibrate. This installment will address these and other questions that vex sound engineers today.—Ed.]

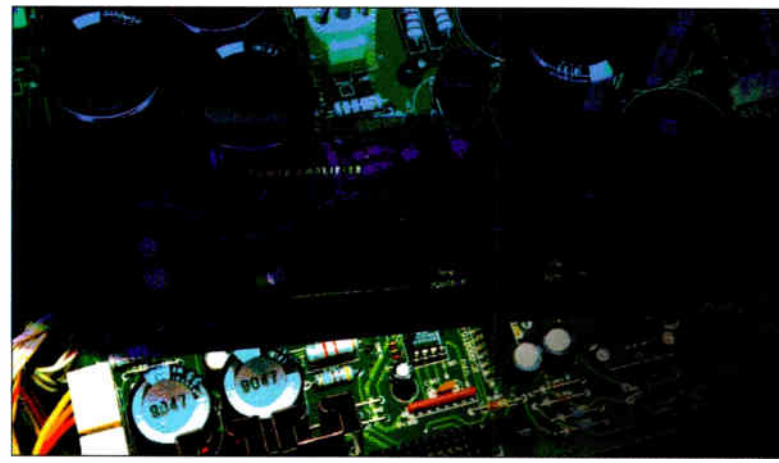


PHOTO ILLUSTRATION: MIKA CHISAKI

When considering the merits of a power amplifier, power is the first specification most people ask about, and for good reason—the weakest link in the chain is usually the loudspeaker's ability to handle power. Loudspeakers have two basic failure modes: over-excursion and overheating. Over-excursion can lift the voice coil right out of the gap, smash it against a stop, tear it away from the cone or distort it out of round so that it rubs within the gap.

Of course, musical peaks push speakers to high excursions, so maximum power is needed to reproduce dynamic music. However, loudspeakers are not efficient devices—up to 99% of the power that goes into a loudspeaker ends up as heat. Put more long-term average power into a loudspeaker than it can safely dissipate, and the voice coil will overheat.

MATCHING THE AMP TO THE SPEAKER

It could be simple. Your amplifier needs no more voltage output than your speaker can handle at its frequency of maximum excursion. That sets your maximum short term power requirement. Concerning long-term average power, your amplifier should be capable of delivering as much power as your speaker can safely absorb.

However, until both amplifier and speaker makers rise to the challenge of specifying their products in ways that allow for objective measurement, users will have to rely on trial, error and experience. As a general rule, amp power output should be 50% more, or even double, the speaker's rating. But how does one determine an amplifier's "power output"?

The standard calculation for measuring amplifier power squares the RMS voltage measured across the load, then divides the result by the load resistance. The final result is often mistakenly called "RMS power," but the correct term is "average power." (RMS means Root-Mean-Square, and when you square an RMS quantity, you "unsquare root" it, yielding just the "Mean," or average.)

The distinction was impressed on me when I was a young and inexperienced amplifier designer. "If you take instantaneous power and average it over time, grasshopper, you get average power—a meaningful physical quantity directly related through time to energy," said my mentor. "But if you take the RMS of instantaneous power, you get a number that represents nothing real." Stung by this reprimand, I measured the power of amplifiers that were rated by their manufacturers in "RMS watts," or RMS power. I found that their measured average power was the same as the so-called "RMS power." So when manufacturers quote "RMS power," I guess we can agree on what they mean—average power.

MEASURING POWER ACCURATELY

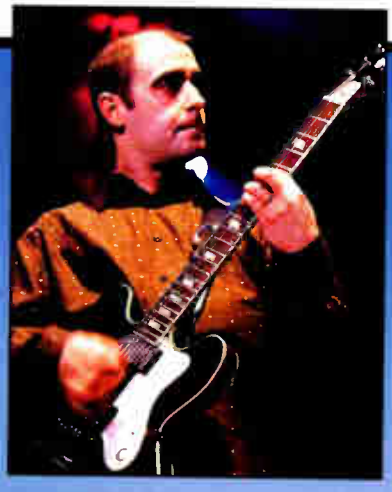
To repeat, the maximum average power rating of any amplifier is calculated as follows: Start with the RMS voltage of the largest amplitude sine wave that can pass through the amplifier without clipping; square that voltage and divide it by standard resistive loads. (Power is usually specified at 8, 4 and 2 ohms.) This method yields a valid answer—provided that the amplifier's source of AC power is a solid 120-volt RMS AC sine wave and that the resistors used as the load retain their accuracy as they heat up.

Why does it matter that the AC line voltage is a sine wave? The voltage rails of most amplifiers charge up to a voltage that is directly proportional to the peak voltage of the incoming AC waveform. However, the way most amplifiers load the AC line often distorts the line voltage, squashing it down until it somewhat resembles a

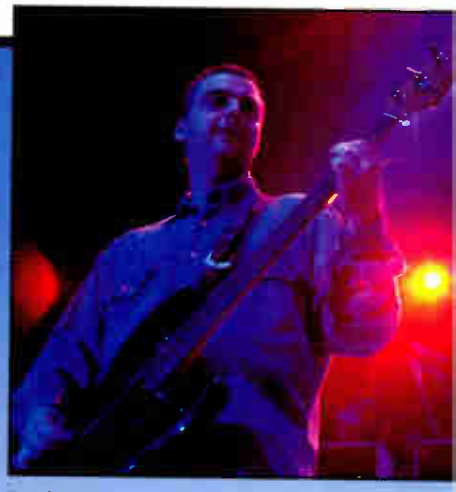
—CONTINUED ON PAGE 176

BY PAUL IERYMENKO

Liam Gallagher, lead vocals



Paul Arthurs, rhythm guitar



Paul McGuigan, bass

Noel Gallagher, lead guitar

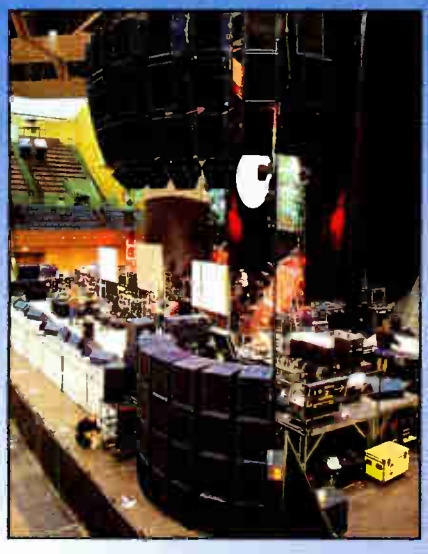
FOH engineer Hew Richards (at the Yamaha PM4000) uses very few effects: an Eventide HS3000 Harmonizer on vocals, a Lexicon 480 on vocals and lead guitar, and some reverb on the snare drum. Richards also uses a TC Electronic TC2290 delay unit on vocals. "It gives me a little bit more control and lifts the lower-register lines, which are really hard to hear at times," he explains.

ALL ACCESS

oasis

Touring the world in support of *Be Here Now*, Oasis has been playing in a wide range of venues, from 4,000-seat theaters to 20,000-capacity arenas. In January the band came to San Francisco's Bill Graham Civic Auditorium.

TEXT AND PHOTOS BY STEVE JENNINGS

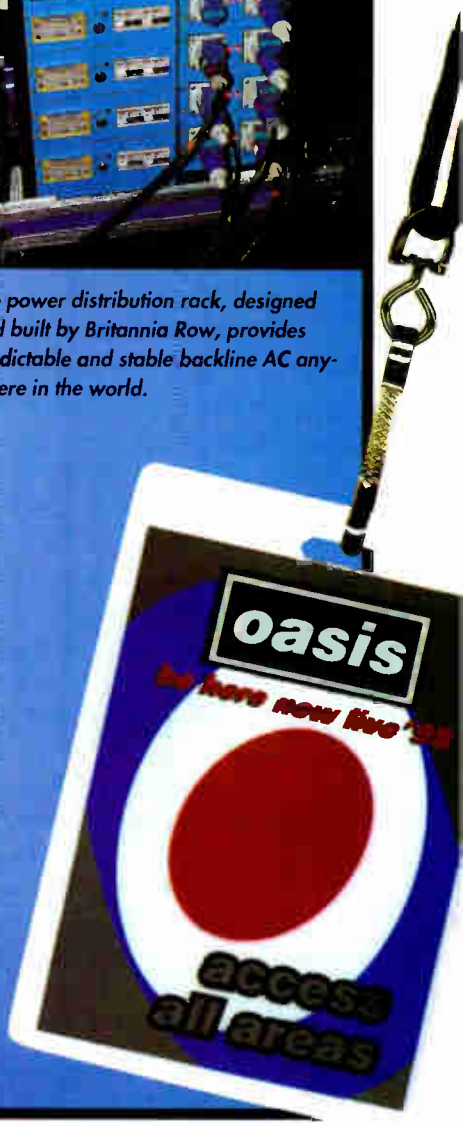


P.A., supplied by UK-based sound company Britannia Row, is a Turbosound Flashlight system. "It projects the vocals brilliantly," says FOH engineer Hew Richards. "Because of the narrow dispersion, you can get plenty of level out of the vocals and cut through the volume of the band, which is quite severe."

Bass player Paul McGuigan's rig includes a SansAmp simulator, which provides a clean and click-free sound (the bass is an old Fender Jazz with very low action).

The power distribution rack, designed and built by Britannia Row, provides predictable and stable backline AC anywhere in the world.

Monitor engineer Gareth Williams at the Yamaha PM4000M. Singer Liam Gallagher's monitors include four wedges and several Flashlight sidefills. "He gets all his low end at his feet," explains Williams. "The Flashlights in the air give him clarity and punch. Because of the Flashlights' 20-degree dispersion, you can stand at the side of the stage when he's really belting it out and be comfortable with it because it's so directional."



—FROM PAGE 173, POWER AMPS

square wave. Cranking up the voltage to restore an RMS value of 120 volts will do nothing to fix the waveform. The peak voltage of a distorted 120V RMS AC line will always be below the 169-volt peak you get from an undistorted AC 120V RMS sine wave. This distortion will always cause your power measurements to be lower than they should be.

AC line distortion errors become worse at higher power output. In an extreme case, an amplifier will lose almost half its power, even when AC RMS voltage is boosted back up to 120 volts. Most amplifier manufacturers slightly understate their actual power ratings so that ratings are verifiable under less than ideal line voltage conditions. Some amplifiers compensate for low line conditions by regulating their rail voltages (power factor correction technology does not distort the AC line voltage the way all other types of supplies do). While "smart" supplies can get better real-world power performance out of your AC distro, even the most sophisticated improvements can't fully make up for all power line deficiencies. To make fair and objective measurements and to verify specifications, a stiff, regulated, industrial-strength source of standardized, undistorted AC power is required.

POWER OUT OF NOWHERE!

Here's a tough question: A 15-amp circuit at 120 volts AC can only deliver 1,800 watts, yet this amplifier is rated at, (say), 3,000 watts. You can't produce 3,000 watts while consuming only 1,800, so what gives?

To get beyond this seeming contradiction, we need a more complete picture of the way power actually flows through an audio system. Power amplifier specifications don't help us much here. An "average power" spec., even a "maximum average power" spec., does not indicate the length of time that the product will actually deliver its average power. On the other hand, who can really say how long that period needs to be for accurate reproduction of music which is, by its nature, dynamic and therefore does not require peak power for extended periods? The measured average power of any and all music is always well below the maximum average sine wave power.

VOLTAGE AND THE EFFECTS OF ALIEN ABDUCTION

My previous article suggested that amp specs can be best understood by first considering the properties of the equipment they connect to.

Picture a 100Hz square wave signal applied to a woofer. Imagine that aliens recently abducted you and returned you to Earth with the ability to speed up your perception. You can now see the cone slowly moving. You can also see the air—it looks thick and murky at the peaks of the pressure wave, thin and wispy at the troughs. You know that the "shape" of the pressure wave should be square,

NEWSFLASHES

Sound touring company **Eighth Day Sound** (Cleveland, OH) purchased two Midas XL4 consoles. At press time, the boards were being used on Puff Daddy's U.S. tour. **Le Grand Theatre** in Quebec City also acquired a 48-input XL4 to replace its Midas Pro 40. The board was supplied by EVI Audio Canada...The sound system at NYC's new **China Club** on W. 47th St. includes components from the JBL Sound Power Series. Two four-cabinet stacks of Sound Power 225-9 double cabinets, each with a pair of 15-inch speakers and 4-inch compression driver, are on either side of the stage. Additional speakers are hung over the dance floor, and all are powered by JBL MPX 1200 amps. A Soundcraft Series 5 console is used for both FOH and monitor mixes...**Corporate Sound** of Grand Rapids, MI, took delivery of a new Electro-Voice X-Array loudspeaker system, which includes four Xf far-field speakers, eight Xn near-fields and four Xb dual 18-inch bass speakers. Eight EV P3000 amps, two Klark-Teknik DN800 loudspeaker processors and a 48-input QII mixing console are used to power and control the new system...**CPX Concert Production Inc.** has moved. The new address is 6600 Geyer Springs, Ste. 10, Little Rock, AR 72209-2765; phone 501/753-1406 or 501/565-3108; fax 501/565-3114... Sound design for the London, UK, production of the musical **Chicago** is by Rick Clarke. Front of house, Clarke uses an 56-channel Amek Recall console with a 24-channel 501 submixer. The console and P.A. for the production were supplied by Orbital of South London. ■

Get 10 dB More Headroom!

Now you can mix hotter signals with less distortion.

$499.99
U.S. Suggested Retail
Price Higher in Other Nations

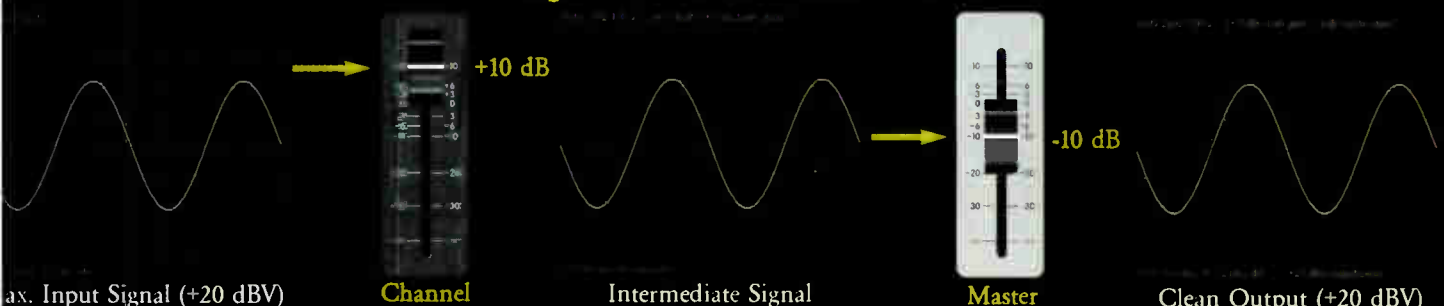
Unity™ 2002-12 RQ

12 Low-Noise/Low-Z Mic Inputs

Most people think that all compact mixers are the same. The Unity 1002 RQ and 2002 RQ "Reference Quality" Series mixers are classic examples of how huge benefits can be realized from small changes in how you connect the dots.

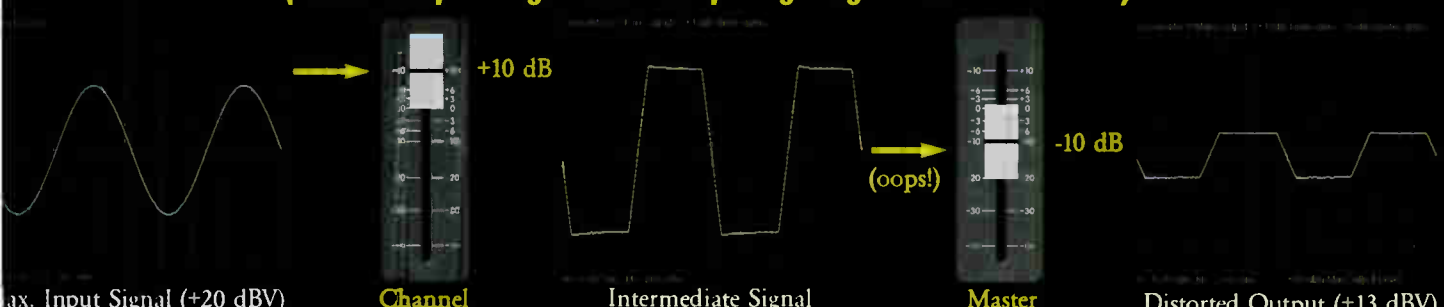
H²B™ Gain Structure. All mixers have about the same total gain between their microphone input and final output, or else they wouldn't work. The Unity RQ Series provides 10 dB more headroom in the channel and at the fader by shifting the fader's voltage gain to "post" summing bus. In conventional gain structures, any fader setting above 0 dB will reduce headroom. At 10 dB of gain, a conventional fader gain stage suffers from electrical overload 10 dB before the channel. The Unity RQ's "High Headroom Bus" structure allows you to use the channel's full dynamic range and all the fader's available gain, while maintaining a distortion-free signal path. **Clean is good.**

Peavey H²B™ Gain Structure



The other guys

(actual scope images from competing "high headroom" mixer)



Yet another benefit from our 32 years of designing mixers for professional users.

CIRCLE #125 ON PRODUCT INFO CARD

MONITOR Magazine is a publication filled with the latest information musicians want to know. To receive 4 issues only $5 (price good in U.S. only), send check or money order to: Monitor Magazine, Peavey Electronics, 711 A Street, Meridian, MS 39301 • (601) 483-5365 • Fax (601) 486-1278 • http://www.peavey.com © 1997

PEAVEY®
Experience the Difference

and with your special powers of perception you can see what is happening.

Here comes a long band of uniformly thick air at increased pressure that originates at the speaker and rushes toward you at the speed of sound. As it passes, you see its density corresponds to the height of the square wave voltage at the speaker terminals. This region of thick air is immediately followed by an equally long wispy region of thin, low-pressure air. That is the "bottom" of the square wave. There is no gradual decrease of pressure between the regions because the waveform is square and the transition from high-pressure air to low-pressure air is very abrupt.

Now look at the speaker cone. As it emits the thick portion of the square wave, you see the cone moving outward with a uniform motion. Then it abruptly reverses direction and creates the region of thin air by sucking backward, also with a uniform motion. But wait! Is that what you expected? The speaker's motion isn't square at all—in fact, it's triangular. The cone is always moving and it's always moving at a constant rate. The transitions from the top of the square wave to the bottom and from bottom to top mark the places where the cone reverses direction.

If you pictured the motion of the cone as drawing out a square wave, you aren't alone. However, with your new super-perception, you can see why it can't be so. To create a drawn-out region of higher pressure in the air, the cone must push the air forward continuously, squeezing and bunching it up even as the leading edge of the pressure "escapes" the cone at the speed of sound. In the same way, the cone must continuously stretch the air to create the region of low pressure. To create these constant flat, square pressure waves, the cone must be in constant motion.

What happens if you keep the amplitude of the square wave the same, but double its frequency? The cone does not actually move any faster, it just changes direction twice as often. The thick and thin regions are now half as long, but their pressures are the same as before. Since the speed of the cone's motion hasn't changed, it only moves half as far before changing direction. The amplitude of the cone's motion has fallen to half of what it was, and yet the sound pressure is still the same.

What happens if we double the amplitude of our original 100Hz square wave? Now the cone moves twice as fast. The total cone excursion has doubled. The pressure in the high-pressure region of air is twice as high above the average air pressure as it was before; similarly, the low pressure is twice as low below the average. We can say that the depth of pressure modulation has doubled.

Let's return to reality and look at the implications of what our super-senses revealed. We have seen that voltage is proportional to the speed of cone motion, which in turn is proportional to air pressure. We have seen that the cone's motion is out of phase with both voltage and pressure. (If we were to substitute a sine wave for the square wave, we'd see that the cone moves most rapidly at the peaks of the sine wave and slows down and changes direction as the voltage and the air pressure swing rapidly between the peaks.) It seems that, to maintain a constant sound pressure as frequency increases, nature observes an inverse relationship between cone excursion and sound pressure. We see the same effect with guitar strings, for example: The lowest

PERFECT POWER.

4 AMPS THAT ARE AS SPECIALIZED AS YOUR SPEAKERS.

If all speakers were identical then maybe you would need only one type of amplifier. However, today's sound systems are comprised of complex multi-way speakers using high-power subwoofers, horn-loaded mid-ranges, and high-frequency compression drivers. Our four newest PowerLight™ amplifiers are designed to give each one of these speakers the right power for peak performance. So stop by a dealer near you for some ideas on how you might power your system, perfectly.

"HEAR THE POWER OF TECHNOLOGY"

PowerLight™ 1.0HV

The PowerLight 1.0HV use a high voltage power supply to deliver 300 watts/channel at 8 ohms and 500 watts per channel at 4 ohms. Employing an ultra-low distortion Class AB output circuit (0.01% THD typical), it is ideal for powering midrange and high frequency drivers, studio monitors, and other critical sound system applications.

PowerLight™ 1.5X & 1.6HVX

Tailor made for bi-amping your monitors or your mains, the PowerLight 1.5X and the PowerLight 1.6HVX offer a high-power channel with a high-efficiency Class H output circuit to power low frequencies, paired with a medium-power channel with an ultra low distortion Class AB circuit to power high-frequencies channel. Built-in crossovers can also be added.

PowerLight™ 2.4MB

The PowerLight 2.4MB mono-block is a single channel amplifier that delivers 2,400 watts at 2 ohms while operating from a single 15 amp 120v AC circuit. It is ideal for driving multiple sub-woofers (up to 600 watts each to four eight-ohm drivers) as well as allowing an odd number of amplifier channels to be configured in a system.

QSC AUDIO 20 YEARS 1980 2000

QSC™ AUDIO

www.qscaudio.com

CIRCLE #123 ON PRODUCT INFO CARD

string on a guitar has a visibly greater swing of vibration than the highest string, even when both are plucked with the same energy and both produce the same level of sound.

Voltage, then, determines how forcefully the speaker cone pushes and pulls on the air. The maximum voltage output of your amplifier determines the maximum sound pressure.

SLEW RATE

In the example above, when the square wave voltage flipped between negative and positive values, the speaker cone changed direction. The maximum speed with which an amplifier can change its voltage is called the slew rate, and is expressed in volts per microsecond. The physical counterpart to amplifier slew rate is a change in the velocity of cone motion, not cone motion as such.

Though one might assume that the best slew rate is the highest, this is not the case. The reason is that no object with mass—including a speaker cone—can instantly change direction or velocity. In fact, the rate of change of motion in physical systems is quite restrained; viewed at the proper scale, all natural physical motion is smooth and gradual. To change direction, a speaker cone must first decelerate to a stop and then accelerate in the other direction. There is nothing to be gained by making an amplifier with infinite slew rate, even if that were possible.

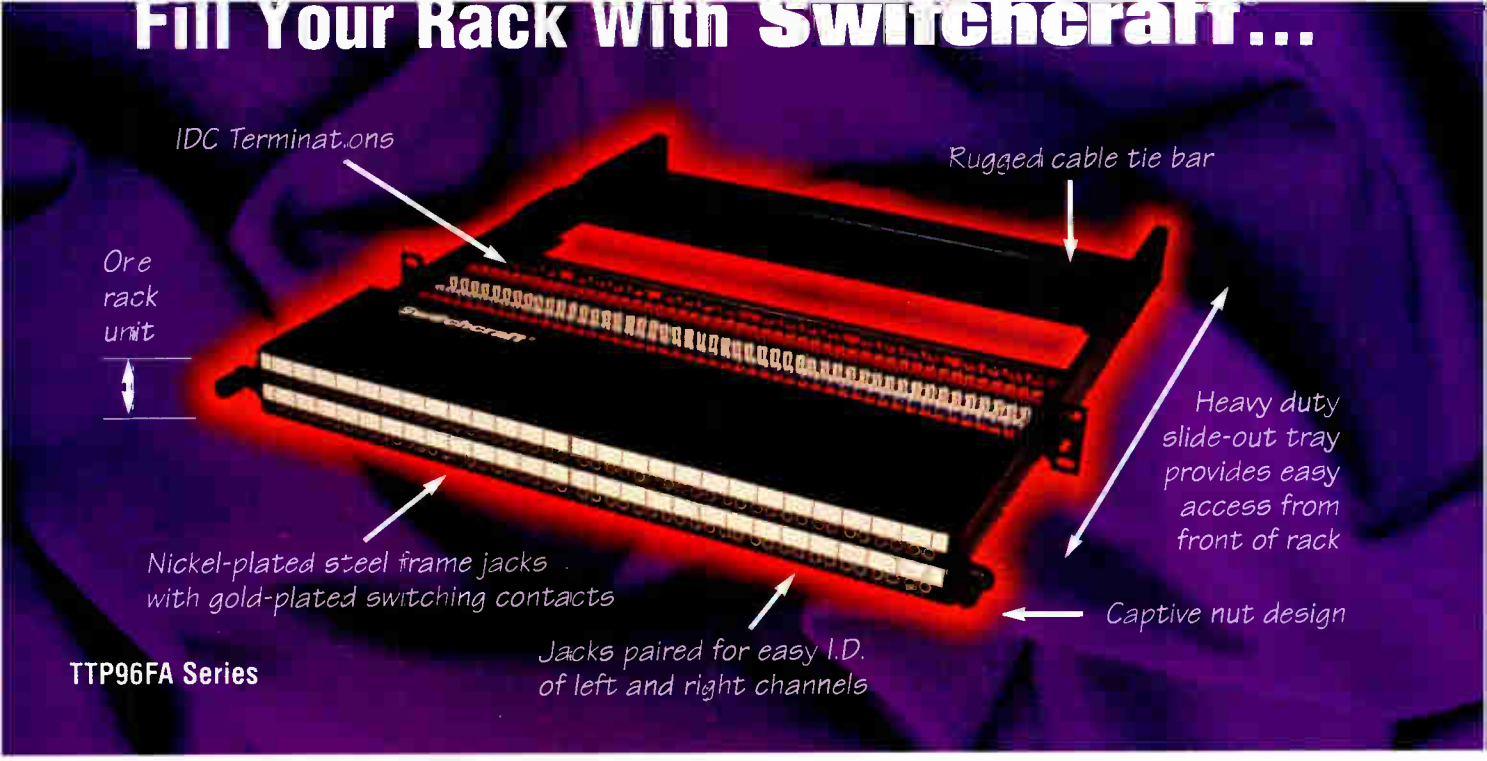
The important thing about amplifier slew rate is that it should be fast enough for the range of signal frequencies and amplitudes the amplifier will be called upon to reproduce. For example, reproducing a 20,000Hz sine wave of 200 volts peak amplitude (that's over 2,400 watts into 8 ohms—about as big and fast a signal as we are ever likely to encounter) requires a slew rate capability of only 25 volts per microsecond. The required slew rate at any given frequency is proportional to voltage, so a 100-volt peak output amplifier delivering about 600 watts into 8 ohms requires only about 13 V/µs slew rate to reproduce a full amplitude sine wave cleanly at 20,000 Hz. Most commercial amplifiers are faster than that by a good margin. For any given audio amplifier, I consider a slew rate twice that required to reproduce a 20,000Hz full amplitude sine wave to be perfectly acceptable.

If a signal tries to push an amplifier's output voltage faster than it can go, slew rate limiting distortion will result. However, fast enough is good enough; having ten times the slew rate that you need confers no benefit at all. The music will never go there. (The foregoing does not apply to electronic music, at least in theory. Unconstrained by physics, electronically produced waveforms can do things that physical systems can't. However, even if your amplifier passes such events without distortion, your transducer won't be able to reproduce them accurately.)

Slew rate limiting distortion is easily prevented by an appropriate lowpass filter. With a single-pole lowpass filter of well above 20,000 Hz, it is usually possible to guarantee that no signal, no matter what its origin, can possibly exceed your amplifier's slew rate. The signal's ultimate speed will be limited by the rise-time of the filter. Unlike amplifier slew rate, filter rise time varies in proportion to signal amplitude and does not cause distortion. Thus simple filters can completely prevent down-stream slew rate distortion by limiting signal rise time.

Many amplifiers have such supersonic filters built in. If the amplifier's slew rate exceeds the rise time of its linear lowpass filtering, slew rate cannot be measured directly. On such an am-

Fill Your Rack With Switchcraft...



Introducing the Front Access Patchbay Series...

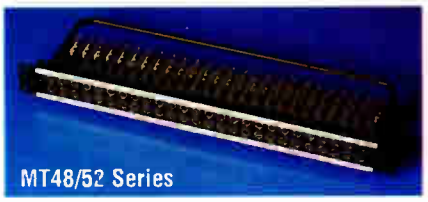
an exciting new reason to make Switchcraft your source for audio panels.

Our innovative front access patchbay gives you space where you've never had it before and convenience you've never dreamed of, in a quality package you've come to expect from Switchcraft. Our heavy duty slide-out tray gives you access to the 96 nickel-plated steel frame jacks ***from the front*** of the unit.

But that's only the beginning! See the photo above for all of the features and benefits, which make this panel ideal for use in studios, tape editing rooms, mobile facilities and anywhere space is limited.

While you're at it, check out the patching products below. Don't forget our high quality patchcords, and industry-standard Q-G® microphone connectors.

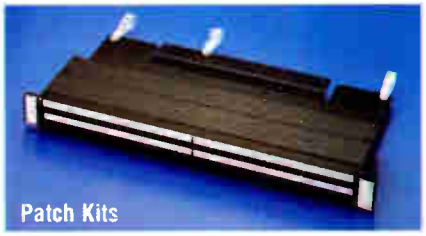
Switchcraft is your one-stop shop for all of your broadcast interconnect needs. Call (773) 792-2700 ext. 243 today for a copy of our Audio Video Products catalog.



- 1/4" Nickel-plated steel frame jacks
- Rugged cable tie bar
- 3 1/2" or 1 3/4" panel height

- TT Nickel-plated steel frame jacks
- Rugged cable tie bar
- Extra wide labeling strips
- 1 3/4" panel height

- Extra wide labeling strips
- Fully-wired with EDAC connectors



- Choose from a variety of normaling configurations
- 3 1/2" or 1 3/4" panel height (1/4" or TT)

Switchcraft®

SEE US AT NAB BOOTH #RL2525

5555 North Elston Avenue • Chicago, IL 60630
(773) 792-2700 • Fax: (773) 792-2129
Switchcraft®-Consistently Excellent Since 1946℠
www.switchcraft.com

CIRCLE #135 ON PRODUCT INFO CARD

plifier, only the rise time of the supersonic filter can be measured.

THERMAL FACTORS

The unofficial term "thermal headroom" denotes the difference between 1) the temperature an amp rises to when it is reproducing typical program material, and 2) maximum temperature before an amp protects itself (or fails). Another common term, "thermal capacity," is used either in place of thermal headroom or as some vague and often unspecified figure of merit. Both terms—"thermal capacity" and "thermal headroom"—should be standardized, but that is easier said than done, since amplifier thermal performance varies according to the type of test signal used. For a thermal performance rating to be meaningful, we need a standardized random test signal with statistical properties similar to music. We should not hold our breath.

There are really two important questions: How long can an amplifier sustain its full power output, and what is the maximum average power the amplifier can deliver continuously? That data and meaningful statistics about the program material would be useful, but are rarely found.

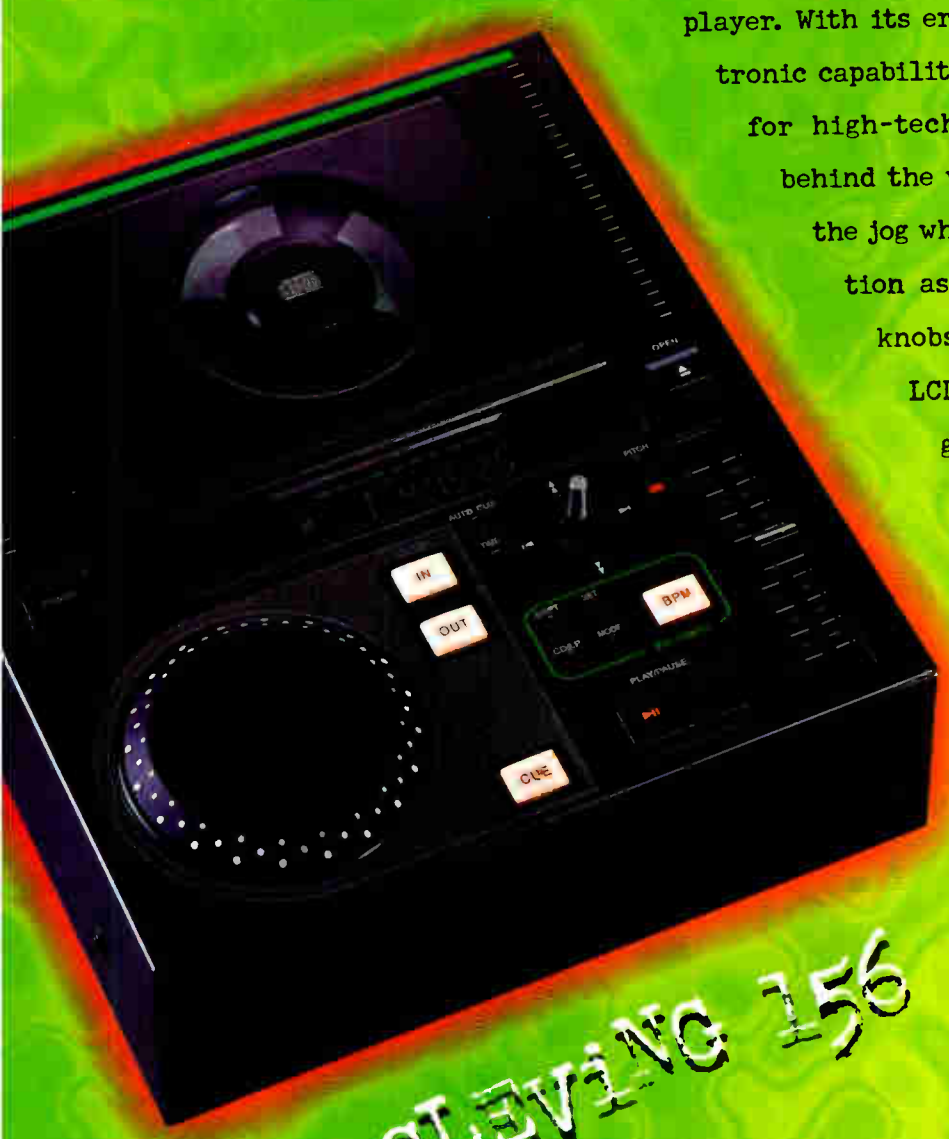
In practice, each manufacturer of high power amplifiers makes a judgment as to how much thermal headroom an amplifier needs in order to reproduce music successfully. In general, more thermal headroom and more thermal capacity will mean more thermal mass, but thermal mass and amplifier mass are not the same thing. It isn't necessarily true that bigger, heavier amplifiers have more thermal headroom.

THE GOOD OLD DAYS

Some of you may be thinking that the best measurement of an amplifier would be its full-power-indefinitely output. In earlier decades, amplifier manufacturers took that approach; even now there are some lower power amplifiers available that can sustain full power ratings indefinitely. But because continuous full power capability was unnecessary for reproducing music, many amplifiers were considered to be larger, heavier and more expensive than necessary for music applications. Users discovered that the amps could be loaded well beyond their ratings—without any audible problems. The 200 watts into 4 ohms full-power-indefinitely amp became the 350 watts into 2 ohms good-enough-for-

take it for a SPIN

JUMP into the fast lane with BST's new top-loading CD player. With its ergonomic design and sound electronic capabilities, the Cleving 156 is designed for high-tech thrills every time you get behind the wheel. And it's no accident that the jog wheel provides DJs the same sensation as a turntable. Plus, the backlit knobs and illuminated, contrasted LCD display make the Cleving 156 great for night rides. Call BST at 1-888-BST-0014 to arrange a test drive.



CLEVING 156

BST
A Division of ULTRAK

1301 Waters Ridge Dr.
Lewisville, Texas 75057-6022
1.888.BST.0014 Fax: 1.972.353.6490
E-mail: bstdesign@ultrak.com
www.bstsound.com

Auto-start access by crossfader or stealth contact • PRECISE AUTO-CUE FUNCTION
BUILT-IN BEAT COUNTER • Backlit knobs & illuminated LCD display
Joystick for quick track searching & pitch bend • VERY COMPETITIVELY PRICED

CIRCLE #132 ON PRODUCT INFO CARD

rock 'n' roll amp.

Users figured this out first. Soon, amp manufacturers caught on and began making amplifiers designed to use more thermal capacity. Pushed by the industry's relentless quest for higher SPLs, this has resulted in today's high-power amps—hot rods capable of accurately reproducing music with power measured in kilowatts.

For those who miss the old days, the solution is simple, if expensive: Buy an amplifier rated for 2-ohm operation and load it with only 8 ohms. Distortion is always lower at higher impedance, and since most failures are related to temperature, amp life will be longer. However, a tremendous amount of market-led engineering has gone into today's high-power amps. If good value and high SPL are your goals, then you should take full advantage of the favorable physics as expressed in these amplifiers.

I feel that an amp's maximum power output should be available for a few minutes, unless limited by the power line circuit breaker, and that the "absolutely never will have a problem" continuous capability should approach one-third of that short-term maximum average power. Unfortunately, not all amplifier companies make products with adequate thermal headroom. You should be able to put an amp on the bench, connect it to its rated resistive load, and run any kind of music you like through it, with about as much clipping as you are ever likely to tolerate, without that amplifier going into any kind of protection mode and without tripping the circuit breaker on a properly rated single-use line. Not all high-power amps pass that test.

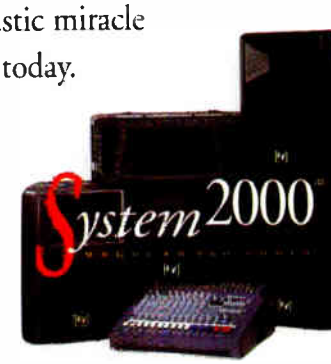
Fortunately, most loudspeaker cabinets are thermally easier on an amplifier than resistive loads. While phase shift generally does increase heat losses, a rise in the magnitude of impedance usually accompanies the same reactance that causes phase shift. A 4-ohm speaker may have an impedance of 8 ohms or more across the majority of its bandwidth. The net result is usually favorable, so even those amplifiers that can't handle the music into a resistor test may get by without distorting, blowing breakers or turning themselves down when connected to a loudspeaker. ■

Paul Ierymenko is director of R&D at QSC Audio Products Inc., and has been a product developer in the audio industry for more than 20 years.

YOU DESERVE MORE THAN JUST SOUND THAT CARRIES.

Sx300

You deserve high-powered sound with unprecedented flexibility. You deserve the new Sx300 with Ring-Mode Decoupling (RMD™), the acoustic miracle that expands resolution. Ask your EV dealer for a demo today.



EV®

For more information visit our website at www.electrovoice.com or call 800-234-6831, 616-695-6831. In Canada call 613-382-2141. Electro-Voice, Inc., 600 Cecil Street, Buchanan, Michigan 49107

CIRCLE #129 ON PRODUCT INFO CARD

New Sound Reinforcement Products

EV FLYING T-SERIES SPEAKERS

Electro-Voice (Buchanan, MI) offers the T15i and T251i, flying versions of the T-Series™ of loudspeakers. Each of the trapezoidal loudspeakers is supplied with factory-installed suspension hardware, including eyebolts, and may be rigged either vertically or horizontally. The T15i is a 15-inch, two-way loudspeaker with a rotatable 60°x40° constant-directivity horn, 250-watt power handling capacity. The T251i is a bi-amplable, 15-inch 2-way system with a rotatable 60°x40° CD horn, DH2T 2-inch HF driver and 400-watt power handling capacity. Constructed in 13-ply void-free birch plywood, both speaker cabinets come in a white textured finish.

Circle 314 on Product Info Card

CROWN CE SERIES AMPS

Crown International (Elkhart, IN) intros the low-cost CE Series of 2-channel power amps with two models, both covered by Crown's 3-year, no-fault warranty. The CE-1000 ($700) delivers 275 W/channel into 8 ohms, or 1,100W bridged mono into 4 ohms. The CE-2000 ($1,000) delivers 400 W/ch, 1,950W bridged, into the same loads. Features include front panel detented level controls; LED indicators for power on, signal present, clip and fault conditions; reset switch; proportional speed fan. Inputs are Neutrik ¼-inch/XLR combo or barrier strip; outputs are Neutrik Speakon. Integral SST crossover modules may be added for custom applications.

Circle 315 on Product Info Card

EAW THREE-WAY SPEAKER

EAW (Whitinsville, MA) has added the LA460 three-way loudspeaker to its LA (Linear Activation) Series. Featuring a 15-inch woofer, an 8-inch, horn-loaded midrange cone driver and a 1.4-inch-exit compression driver, the LA460 may be driven either full-range passive or bi-amplified. Frequency response is 62-20k Hz, ±3 dB; peak full-range output is 130 dB SPL. Dimensions of the trapezoid cabinet are 35x20.7x19.5-inches (rear width is 14.2-inches), and the cabinet is supplied with three-position flytracks.

Circle 316 on Product Info Card

NADY UHF WIRELESS MIC SYSTEM

Nady Systems (Emeryville, CA) announces its latest UHF wireless microphone system, the 81/82 XR Pro UHF Series. Available in single (81) and dual (82) receiver models, the XR Pro Series units offer two user-switchable channels and feature proprietary DigiTRU Diversity™ digital processing for optimal performance. The system may be used with an HT-5 handheld dynamic mic or, with the SX-5 bodypack, with any lavalier or headmount electret condenser mic. Transmitters provide up to 12 hours of use on one 9V battery and include a low battery LED indicator. Outputs are adjustable line-level (¼-inch) and mic level (XLR). Prices start at $799 for a handheld mic system.

Circle 317 on Product Info Card

CARVER PXM POWER AMPS

Carver Professional (Portland, OR) intros three models in its new line of PXm power amps. The PXm900 ($795) delivers 300 W/channel into 8 ohms and 900 watts bridged mono into 8 ohms. Comparable figures for the PXm450 ($665) and PXm250 ($535) are 150 W/ch and 450 watts bridged, 75 W/ch. and 250 watts bridged, respectively. Features include front panel rotary level controls, LED indicators, paralleled ¼-inch and XLR inputs, variable speed fan cooling, and a five-year parts/labor warranty.

Circle 318 on Product Info Card

AB ER SERIES AMPS

AB International Electronics (Roseville, CA) intros its ER Series amplifiers with the ER2050LX, a 2-channel, two-rack-space unit delivering 420 W/ch into 8 ohms (1,460 W bridged mono). Features include balanced XLR and ¼-inch inputs, detented level controls, signal present and Soft Clip indicators and selectable input sensitivity switch. The ER2050LX operates from 100V to 240V and has protective circuitry against AC and DC line voltage abnormalities. The ER Series includes ten amps from 125 watts to 1,800 W/ch (8 ohms). The ER2050LX is $1,071.

Circle 319 on Product Info Card

WAKE UP YOUR SUBS!!

AND HEAR YOUR MUSIC COME ALIVE.

Today's subwoofers demand serious power to perform at their peak. That's precisely why we built the PowerLight™ 2.4MB Mono-Block–a single channel amp that delivers a thundering 2,400 watts of power at 2 ohms while operating comfortably on less than 15 amps (120VAC). It's guaranteed to provide a serious wake-up call to your subs. And since it's a QSC, you won't have to worry about them getting any unexpected shut-eye. To learn how PowerLight technology can bring your music to life, visit our website or call (800)854-4079.

"HEAR THE POWER OF TECHNOLOGY"

PowerLight™ 2.4MB Features

- PowerWave™ Technology
- Neutrik "Combo" (XLR & 1/4") and barrier balanced input connectors
- Advanced thermal protection
- Computer Control Data Port
- Patented Output Averaging™ short circuit protection
- "Touch proof" binding post output connectors
- Variable speed fan
- Power standby control
- Clip limiter (user defeatable)
- Detented gain controls
- DC, subsonic and thermal overload protection
- Full LED status array

QSC AUDIO 30 YEARS 1968 1998

QSC™ AUDIO

www.qscaudio.com

CIRCLE #136 ON PRODUCT INFO CARD

PHOTO: GERAINT LEWIS

Members of the Club: Ibrahim Ferrer, Compay Segundo and Ry Cooder

RY COODER

FROM CUBA WITH LOVE

by Blair Jackson

It's always worthwhile checking in with Ry Cooder from time to time. The eclectic guitarist usually has some interesting project on the fire, whether it's a film soundtrack (his most recent was for Wim Wenders' *The End of Violence*) or an offbeat session with musicians from some forgotten part of the world. Cuba isn't exactly "forgotten"—in fact, Cuban music is sort of "hot" these days—but leave it to Cooder to come up with something unexpected from that highly musical island nation.

Buena Vista Social Club, on the World Circuit/Nonesuch label, finds Cooder sitting in with an ensemble of mainly older Cuban musicians for a set of pleasing, folkish material that's dripping with feeling and great playing. Cooder and his percussionist son, Joachim, fit in beautifully with this group of skilled players, who cut this CD of Cuban songs in just eight days at Egrem Studios in Havana in the spring of 1996. The British engineer Jerry Boys, who also cut last year's *¡Cubanismo!* compilation, expertly captured Cooder and company, recording live in the studio with the musicians set up in a semicircle—the vibe of the set is extraordinary. Since the CD's release last summer, it has earned overwhelmingly positive reviews and has proven to be a surprisingly strong seller; as we went to press in late February, it was still high on *Billboard*'s World Music chart. It's nice to see something so rich and soulful succeed for a change.

The last time we spoke, three or four years ago, you had just finished working on the soundtrack for Geronimo, ***where you'd worked with the Tuvan throat singers and Indian flutists. Now you're playing Cuban music. You lead a very interesting life!***

Well, you just have to go out and find the people who can do the thing you need to get done. Those Tuvan guys really worked out, and they've gone on to do quite a few things; they're definitely on the map.

How did the **Buena Vista Social Club** ***project come about?***

I got a call from Nick Gold over at World Circuit Records in London, who I'd worked with on the Ali Farka Toure record, and he has a lot of connections in Africa and, now, Cuba. He'd been poking around, and he thought

—CONTINUED ON PAGE 195

LOUIE BELLSON

A BIG BAND CAPTURES "THE ART OF THE CHART"

by Robyn Flans

Sitting in Capitol's Studio A listening to Louie Bellson record his new big band album, *The Art of the Chart*, really made me appreciate the true art of recording, and at the same time ponder how it could take Fleetwood Mac over a year to present a finished product. How can that be when these 17 musicians took only two days (four sessions) to record some of the most complex arrangements you'll ever hear—live, no less?

The production team obviously had something to do with how smoothly the recording went. Producer Gregg Field has the advantage of having been on both sides of the glass—as drummer for Ella Fitzgerald, Count Basie and Frank Sinatra, and more recently having produced Bob Florence's *Earth* (Concord) and Dennis Rowland's *Now Dig This! A Vocal Celebration of Miles Davis*, as well as Bellson's last release, *Air Bellson*. Field recruited engineer Don Murray for the project, and although he was in the midst of recording Dave Grusin's LP, he took some time to set the sounds for Bellson so that Capitol's longtime engineer, Charlie Paakkari, could oversee the process.

PHOTO: SHARYL NODAY

Bellson recording in Capitol's Studio A

At 73, Bellson is an expert live recording artist. As sideman, leader or co-leader, he has recorded approximately 250 albums. Playing with Benny Goodman by the age of 17, pioneering the double-bass drum concept in 1946, working with Tommy Dorsey the following year and later playing with Harry James and Duke Ellington, Bellson earned a reputation as one of the world's foremost drummers. This most recent recording, designed to pay tribute to some of the great big band arrangers, such as Thad Jones, Tommy Newsom, Bill Holman and Bob Florence, also displays Bellson's prowess as a composer. He is justifiably proud of the finished product.

"Years ago, we used to go in and record and everything sounded great when

—CONTINUED ON PAGE 200

RESERVOIR

LO-FI PHILOSOPHY FOR A HIGH-TECH AGE

by Bryan Reesman

The man otherwise known as the avant-pop group Reservoir, Jud Ehrbar, strives to combine the DIY approach of indie rock with the sequenced approach of modern electronic music. In other words, he makes and records music in his bedroom but gives things a spontaneous twist by triggering live samples. The drummer for indie rockers Varnaline and the former drummer and keyboardist for the now-defunct Space Needle, Ehrbar began Reservoir to explore his idiosyncratic artistic impulses outside of those two ensembles. Ehrbar's second and most recent album, *Pink Machine* (Zero Hour), exhibits a good range of unusual pop music funneled through his quirky whims and sensibilities.

The opening track, "Go Back," starts things with murky, ambient drones that collide with a sparse, piano-driven pop tune. The highly syncopated, psychedelic "Air Coryell" quickly shirks conventional song structure and transforms into an extended, fusion-style keyboard jam. Then there are more straightforward numbers like the title track, which functions as a simple guitar and vocal combo.

Reservoir has become an amorphous entity that Ehrbar shapes as he goes along. The only thing both of his albums really have in common, other than his affinity for odd keyboard sounds, is that they were recorded with a Tascam 464 4-track. While his eponymous debut is a 40-minute collection of gritty, ambient drones that simultaneously hover in and cut through the air, *Pink Machine* contains pop songs that could have worked for Space Needle.

PHOTO: KELLY RICHMOND

Jud Ehrbar in his home studio

—CONTINUED ON PAGE 204

THE CARS' "JUST WHAT I NEEDED"

by Blair Jackson

In the late '70s, there were all sorts of bands lumped under the broad label "new wave," which usually implied the groups were forward-thinking (rather than rooted in '60s rock or self-indulgent "progressive" sounds), played short songs ("Death to drum solos!") and drew at least some energy and inspiration from the punk movement. Bands as diverse as The Stranglers, Tom Petty & the Heartbreakers, Blondie, Elvis Costello & The Attractions, Talking Heads, Mink DeVille and Richard Hell & The Voidoids were tagged as new wave—the style ran the gamut from bubbly, commercial-sounding power-pop to noisy, angst-filled ravings. The Cars were basically supreme popmeisters with an unfailing commercial sense, yet in their look and their sometimes edgy musical approach, they definitely owed much to the new wave.

Though considered a Boston band because they broke out of that city, The Cars have roots in the Midwest: Ric Ocasek, the band's rhythm guitarist and principal singer and songwriter, and bassist/singer Ben Orr hooked up in Cleveland nearly a decade before The Cars were formed. Ocasek had dropped out of college to be a musician, and Orr was already gaining experience as a session musician and sometime producer. They played together in a number of different bands based in different cities, ranging from a folk trio called Milkwood (which cut an album in the early '70s) to various rock aggregations. The peripatetic twosome eventually settled in Cambridge, Mass. Once settled in the Boston area, they hooked up with keyboardist Greg Hawkes, who'd worked with Martin Mull and the Boston band Orphan; guitarist Elliot Easton, who first played with Ocasek and Orr in a group called Cap 'n Swing; and drummer David Robinson of the proto-new wave band the Modern Lovers. The quintet became known as The Cars in late 1976 and played their first gig in Boston on New Year's Eve of that year.

In February of '77, they began playing regularly at Boston's seedy but important Rat Club, where they were "discovered" by their first manager, Fred Lewis. Shortly after that, the group cut a demo tape of some of Ocasek's songs, including "My Best Friend's Girl," "Good Times Roll" and "Just What I Needed"; that last tune found its way onto the playlists of two local FM stations, and all of a sudden there was a big buzz about the group. Lewis managed to land the band slots opening for such late-'70s powerhouses as Bob Seger, Foreigner and the J. Geils Band. After a headlining gig at College of the Holy Cross near Boston in November '77, The Cars were signed by Elektra Records and in early 1978, the group was shipped to England to cut its first album with one of the hottest British producer/engineer teams of that era, Roy Thomas Baker and Geoff Workman, who were riding high after their work with Queen and Journey.


PHOTO: GEORGE HOLTZ

L to R: Ben Orr, Greg Hawkes, David Robinson, Ric Ocasek and Elliot Easton

Workman remembers, "I came over to the United States in 1977 to work with Roy on a Journey album, and after that Roy and I struck up a relationship where we worked on a load of albums together. After we made that [Journey] record, we went back to London because our next project was going to be a Patti LaBelle album at Air Studios—George Martin's place. We booked time there and presumably everything was going according to plan. At the last minute, there was some problem between the British musicians' union and her, where she had wanted to bring her whole band over, but they wanted her to use a number of British musicians or something—some weird ruling that's probably off the books now. At any rate, the project was put on hold and then Roy got a call from Elektra New York saying, 'We've just signed a brand-new band out of Boston called The Cars—would you be interested in producing them?' And Roy said, 'Well, I'm not really that aware of them.' So Elektra sent over their demo tapes and Roy liked what he heard, so he agreed to make the record. We ended up using the time that was booked for Patti LaBelle."

According to Workman, the now-defunct Air facility "was on the third or fourth floor of a building overlooking Oxford Circus. It was a fully professional place, very well-equipped and main-

SOLIDTUBE

EXPERIENCE THE WARMTH

AKG Acoustics, the leader in studio microphones for over 50 years, proudly brings you the latest in tube microphone technology, the **SOLIDTUBE**

A full complement of accessories is included with every **SOLIDTUBE.**

AKG

AKG Acoustics, A Division of Harman Pro North America, 1449 Donelson Pike, Nashville, TN 37217, phone: 615-360-0499, fax: 615-360-0275
AKG Acoustics GmbH, Vienna/Austria/Europe, http://www.akg-acoustics.com

CIRCLE #137 ON PRODUCT INFO CARD

H A Harman International Company

tained. Actually, it was while we were doing The Cars' album that George [Martin] was coming around and asking Roy and me about equipment, because that's when he was trying to put Air Montserrat together. He was saying, 'You guys work in America—what kind of equipment do American engineers and producers like?'"

The Cars album was cut in Studio 3 at Air, which was one of the smaller studios there. (At the time, the big studio down the hall was occupied by Kate Bush, who needed a full orchestra for her own first-album sessions.) The control room was equipped with an 8000 Series Neve console and Tannoy Gold monitors, but instead of using the studio's multitrack, "we used a Stephens 40-track 2-inch machine that was shipped over in flight cases from Los Angeles," Workman says. "This was the machine we'd done the *Infinity* album on with Journey. I remember people would say, 'A 40-track machine?! You've got to be kidding!'

"Of course back then you usually didn't fill the 40 tracks, but it gave you the availability to do your background vocals—your three roots, your three thirds, your three fifths—on nine separate tracks and not be obliged to mix them down on the spot. You could come back in the cold light of day with a fresh ear, and then bounce them. Same with guitar parts. If you're doing three-part guitar harmonies, like we did with Brian May [of Queen] and Neal Schon [of Journey], you had the tracks for it, and you could leave them there until the last minute, until all the overdubs were on so you could make sure everything—the vocals and guitars—would be correct within the track. Sometimes if you sit them in the track too early, by the time you've added everything else on, you start to lose little things—like the third in that harmony—but it's too late; you bounced it down."

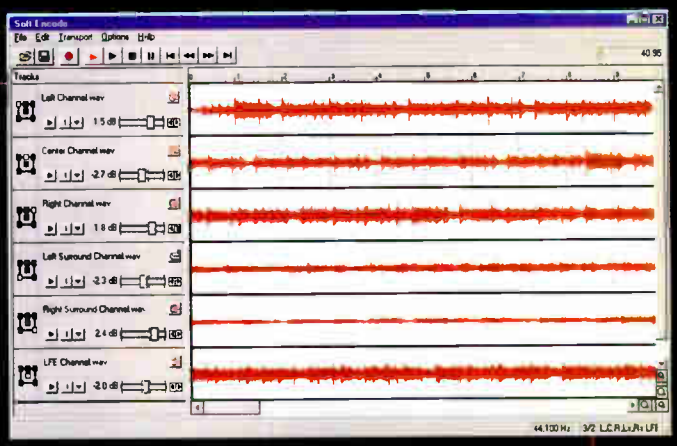
Back then you usually didn't fill the 40 tracks, but it gave you the availability to do your background vocals on nine separate tracks and not be obliged to mix them down on the spot.

—Geoff Workman

Workman recalls that The Cars were a highly professional outfit who knew their songs very well and were always cooperative. "I think they flew in on a Monday morning and we were setting up stuff Monday afternoon," he says. "Roy and I both met them for the first time at the studio, which was not the way we usually worked. The beauty of this album is that we recorded it in nine days and then took 11 days to mix it because there are a lot of crossfades and little effects. We were working 10 in the morning 'til 6 in the evening—banker's hours—but because they knew the songs so well, it went very smoothly. The basic tracks had everyone playing together, but for the most part we only kept the drums and bass and then replaced the other parts."

Workman says that Air featured a fine complement of mics, including many old Neumann and AKG models. Ben

Dolby Digital Encoding for Windows



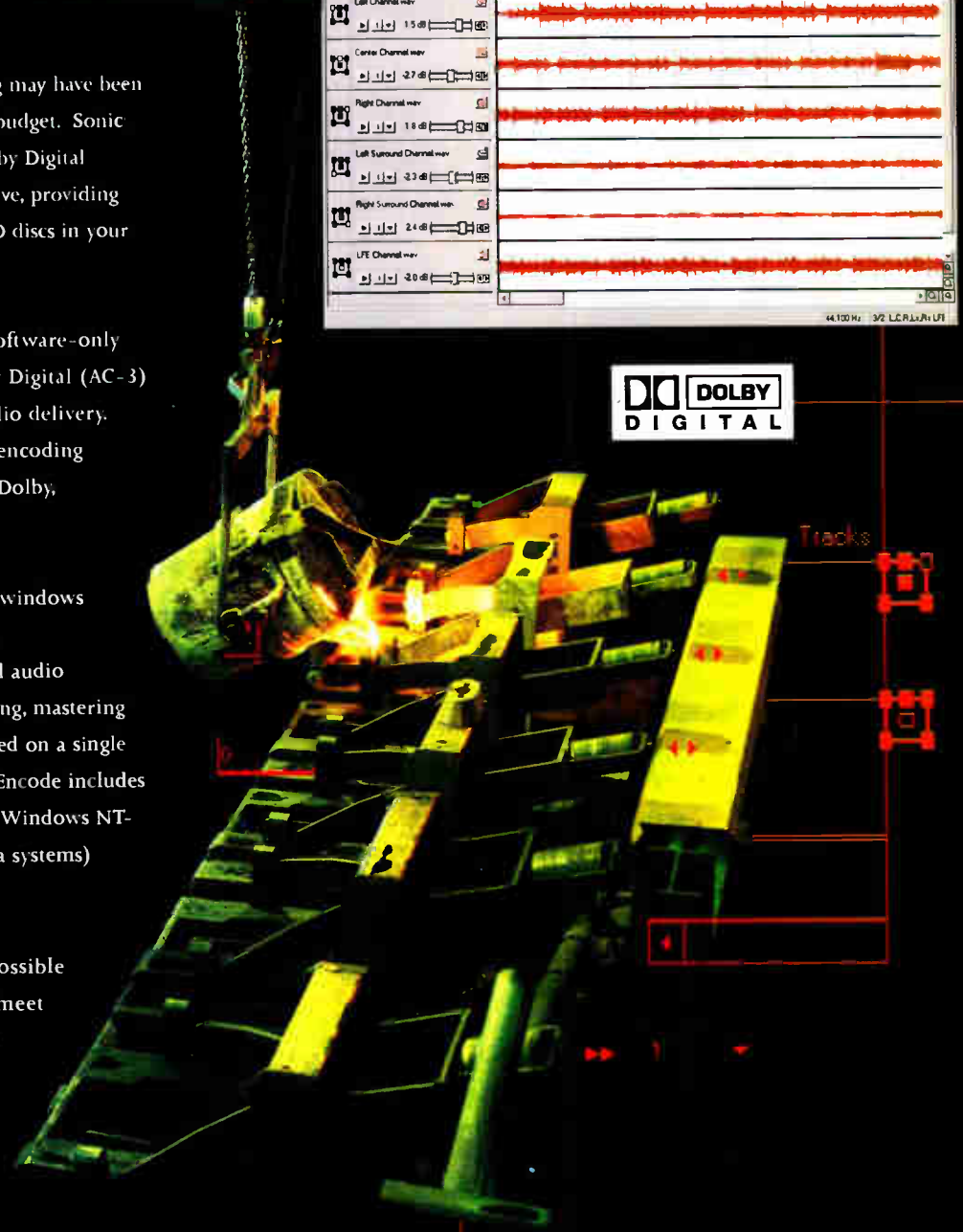
Until now Dolby Digital encoding may have been out of your reach or out of your budget. Sonic Foundry's Soft Encode makes Dolby Digital encoding accessible and inexpensive, providing you with the ability to create DVD discs in your facility with a PC.

Soft Encode is a revolutionary software-only based program that offers Dolby Digital (AC-3) encoding for multi-channel audio delivery. Soft Encode supports all audio-encoding modes including 5.1 surround, Dolby, Surround, mono and stereo.

Because Soft Encode operates in windows 95 and Windows NT, it is highly compatible with Windows-based audio editors. The entire process–editing, mastering and encoding files–can be handled on a single Windows-based machine. Soft Encode includes native versions for Windows 95, Windows NT-compatible (x86, Pentium, Alpha systems) on a single CD-ROM.

With Soft Encode, it is now possible to encode audio in-house to meet the increasing need for Dolby Digital in the production of DVD, HDTV and laser discs.

DOLBY DIGITAL



Soft Encode

satisfying your need to create great sounding Dolby Digital

1 800 57 SONIC or www.sonicfoundry.com/ad/soft

SONIC FOUNDRY®

CIRCLE #139 ON PRODUCT INFO CARD

Orr's bass and Greg Hawkes' keyboards were DI'd, with Hawkes setting up his rig of keyboards in the control room.

"He was really into the old, funky keyboards," Workman says. "He had a Vox Continental and a Farfisa and a little old Moog [which is prominent on "Just What I Needed"]. He had all these instruments that looked like they'd come out of thrift stores, but he got these really interesting sounds out of them. Other people were experimenting with Oberheims and these other keyboards that you practically needed a programmer for, but Greg would just plug in and play. He was very fast in the studio—he always knew what part a song needed. Same with [guitarist] Elliot Easton. I remember when it came time to do overdubs and Elliot came in we said, 'What songs do you want to try today?' and he said, 'I'll do 'em all!' He had really worked these things through in his mind and arrived at the solos he wanted, and that's what he played."

Though Baker had earned something of a reputation for grandiosity in his productions because of his work with Queen, Workman notes that with The Cars, the intention was always "to keep that stripped-down sound they had, but finesse it a little. If you listen to songs like 'Good Times Roll' and 'My Best Friend's Girl,' they actually have huge background vocals, but we kept them back within the track so you don't notice it so much. They weren't meant to be the major point of the song. But I think that sort of thing was part of the idea of hiring Roy and me. A lot of what we were doing were things having to do with the presentation of the material—little embellishments, harmony ideas, that sort of thing.

"When you talk about The Cars' first album, aside from the actual songs, the thing most people remember is that 'chick-chick-chick' chuggy guitar sound. How that happened is when we were cutting the bed tracks, we had to put either Ric Ocasek's or Elliot Easton's guitar amp in the doorjamb—from the corridor to go into the studio area there was a little space, like an airlock, and we put one of the amps in there on its back and put a mic up in the air there; that was our iso booth. We were finding any little areas where we could finagle stuff away, so we wouldn't get bleed onto the drum mics. But the sound we got from that little amp in that small area was great and we used it a lot."

"Just What I Needed," with Ben Orr, rather than Ocasek, on lead vocals, was the first track the group recorded at Air, and also one of the simplest tunes on the album. The approach was to make every element as crisp and clear as possible, keeping the bass and drums punchy and effect-free and letting the slashing guitars propel the tune. The stacked backing vocals do recall Queen ever so slightly, but less on this track than some others. Greg Hawkes' memorable synth solo dominates the end of the song.

Workman says that the greatest challenge on the album was mixing it, because of the complexity of the vocal arrangements and various ornamental touches, from imaginative Syndrum textures to multiple keyboard sounds. "We'd do a thing where we'd send a gated snare drum through a couple of little Auratone speakers and we duct-taped a couple of Synare pads on top of the Auratones so every time the snare popped, the air movement out of the Auratone triggered the Synare. We were always experimenting."

The first three songs Workman and Baker mixed for the album ended up being the first three Cars singles, and all were medium-sized hits: "Just What I Needed" made it to Number 27, "My Best Friend's Girl" reached Number 35 and "Good Times Roll" got as high as

Number 41. Beyond their success as singles, however, those songs and a couple of others ("You're All I've Got Tonight" and "Bye Bye Love") garnered an enormous amount of FM airplay, and The Cars' debut album went on to become one of the biggest success stories of 1978-79. The group was voted Best New Band in *Rolling Stone*, but they were beaten out for that title at the Grammys by A Taste of Honey. *The Cars* stayed on the *Billboard* charts for nearly three years after its release.

Though many feel that The Cars never made another album as good as their first, their popularity actually rose with subsequent releases, including *Candy-O* (which again teamed Baker and Workman), *Panorama*, *Shake It Up* (both produced by Baker, but with other engineers) and the Mutt Lange-produced *Heartbeat City*. The group broke up in 1988, but the hooks will never fade away. ■

—FROM PAGE 188, RY COODER

it would be a cool thing to get some of the West African highlife guitar players into Cuba to play with Cuban players—it seemed like an obvious connection, an obvious exchange. So that's what he called me about, but at the last minute, the Africans couldn't make it and we'd booked all these great Cuban musicians already, and we thought, "Well, let's just go ahead and make a song record."

How familiar were you with most of the specific players on the album?

I knew who they were. I've had Compay Segundo records. I've had Reuben Gonzales records for that matter, but no one knew exactly where he was at first. No one had heard from him in a long time. Somebody said he was dead. Somebody else said he was arthritic and couldn't play anymore. And of course we found out he still could play, and play really well. And this singer, Ibrahim Ferrer—no one had ever heard of him. He's incredible! You meet him, and he sort of comes across as being in a trance all the time—he's a Santaria guy, so he's got this focus like he's a yogi or something. Finding this basically undiscovered voice was amazing. He has a quality on the mic that's like Nat Cole or somebody like that. A real natural quality.

Is there still a commercial outlet for these older guys?

Not really. What they play is folk music; it's really the musical core that underlies a lot of their other kinds of music. The dance stuff—the rumbas and cha-chas—come from this root, and you can hear it in the more modern music. But these guys play it in the traditional way, the classic manner you might say. They have a natural expression that comes from somewhere deep inside; they have an inner life that was never eclipsed or replaced. In the modern corporate era, what is it that people have had taken away from them? We've all lost something. It's kind of like the body snatchers—it's happened to us all. But it hasn't happened down there, partly because of the isolation, partly because there is no corporate state down there. The economic life of Cuba is so secondary to the Cuban cultural thing that they have, whereas in this country, the economic life is primary.

Hadn't you gone there many years ago?

I was there in the '70s. It's in worse shape now. Things are much more beat-up. I mean, everything was old there to begin with. But if you can't get parts for things or import new things, you make do with what you've got. Havana is a beautiful city with great architecture, but it's in terrible, terrible shape. There are holes in the street big enough to sit in.

Let's talk about the sessions. You went down with Jerry Boys, who had done

the* iCubanismo! *record. Did you bring down a lot of equipment, or is the main studio you used, Egrem, equipped well?
It's a good studio. But also, you don't need a lot of equipment to record this kind of music. What you need is a room like that; that's really what it's all about. RCA built that room in the '40s to record all the swing music and Afro-Cuban big bands that were around back then. Guys like Cab Calloway would go down there and record. It was a big deal. And it's perfect for that kind of music. It has a very high ceiling and bright surfaces—linoleum floor, wood walls and ceilings. But of course somewhere along the line, probably in the '70s, they put in a Studer machine, a good 24-track, and then later they got an Amek Mozart board that I think is excellent, and that's the heart of what you need equipment-wise. Jerry brought some equalizers and a couple of other things.

I have to give Jerry some accolades here for doing the greatest job possible. I mean if you're in there and you don't capture this feeling in the room, you've failed. And he captured that. He captured that essence. At the same time, we didn't want some folkloric approach, just capturing some country guys in a barn somewhere. The fact that these guys sit around in a circle and play in this really intimate way—you need to get that juice on tape. So we had two overhead mics—they had a nice bunch of microphones; half of 'em worked, half of 'em didn't—and then we'd do close-miking on some of the voices and some of the instruments. But basically it's an old-style record. It's all live; no overdubs down there. The excitement is produced by the people playing together.

It's an old-style record. It's all live; no overdubs down there. The excitement is produced by the people playing together.
—Ry Cooder

What did it require of you in terms of preparation?
Oh, I didn't do much. I was down there thinking we were going to do Africans and Cubans together, but I had a list of songs to show them what I liked, but that was more just like a jumping-off point, because they obviously knew lots of things I didn't know, or they'd say, "That's a nice song. Here's one that's a little like that one but..." Compay Segundo knows *all* the music. He's written a lot of it. He's *the man*, and if he says do a tune, you do it. He was the fulcrum. He's the one who made it happen, really. On something like this, you've got to have somebody who sort of drives it, who can be the center of the thing—not be on the periphery of it or be an aspect of it.

I remember in the old days in Hawaii we used to record with [slack key guitar great] Gabby Pahinui. He was that kind of person, too. There aren't many people who can fill that kind of role—a lot of them are gone now—but they're the ones who pull it together and make it extra special.

Actually, I was going to mention that a couple of tracks, like "Amor de Loca Juventud" and the following cut, "Orgullecida," have a little slack-key feeling. I could hear the connection between the

have you heard?

There's good news coming from ENSONIQ. The latest release of PARIS™ includes all the cutting-edge components you need to record, edit and mix digital audio at a professional level – *Mac and PC!* Right out of the box, PARIS gives you the most complete integrated digital audio solution on the market today...for a whole lot less. It's a complete recording studio, with...

Integrated Control – *Every PARIS system includes a 16 channel dedicated control surface that interacts seamlessly with the PARIS software.*

24-Bit Precision – *24-bit inputs*, outputs*, file path and effects processor.*

128 Track Playback – *Go beyond the typical 16 tracks, using our new transparent submixing technique.*

World Class Effects – *Each PARIS system includes 12 real-time, 24-bit effects, including reverb, delay, chorus, compressor, expander and more.*

64 Bands of Parametric EQ – *Plus, an additional 448 virtual EQs, with transparent submixing.*

I/O Expandability – *The new MEC (Modular Expansion Chassis) includes 9 slots, making it easy to increase the input/output capacity of your system. New MEC modules: 24-bit 8 inputs, 24-bit 8 outputs, AD.AT, SMPTE.*

For more information and a list of Authorized ENSONIQ Dealers nearest you, visit the PARIS website today: www.paris.ensoniq.com

**with optional MEC modules*

ENSONIQ

LEADING THE WORLD IN SOUND

ENSONIQ Corp. 155 Great Valley Parkway, P.O. Box 3035
Malvern, PA 19355-0735 (610) 647-3930 *fax:* (610) 647-8908

www.paris.ensoniq.com

CIRCLE #143 ON PRODUCT INFO CARD

Hawaiian and the Latin sensibilities.

They have similar roots, of course. And when [Compay] heard me playing some bottleneck guitar, he said, "Si, yo conozco. I used to have a friend who was crazy for American films in the '30s and swing music, and he wrote songs like that." So he'd written some tunes that were influenced by that, just like the Hawaiians did.

When you've thrown yourself into a culture like this, is it easy for you to adapt completely to it, or do you find yourself drawing on the idiomatic qualities of the various other world musics you've been involved with?

Well, you're trying to be complementary to them, of course. What I found in Cuba is that everyone wanted to serve the music and be a part of this thing we were doing. For me, the challenge was to find out a way to fit in with this music that was already a part of them. And Compay would sometimes turn to me and say, "No, you've got to do this," and he'd show me some chord changes and ways of fingering that made it sound better. That music is a particular thing, and you have to respect that. Beyond that, though, obviously you put some of your own thing in there.

Is learning all these different styles cumulative?

Oh, yeah. They're all similar—slack key, Cuban, Joseph Spence's music in the Bahamas. It's all the same stuff, but there are little differences that make each one special and unique, too. And to be honest, in each of these kinds of music there's a point beyond which I can't go, because I'm not Cuban, I'm not Hawaiian. I'm certainly not from Mississippi. So there's always something I can't do that I could do if I was from those places, had played that music my whole life and was now 70 years old. I can get close sometimes, and I almost always have fun trying, that's for sure.

Did you typically run down a few takes of each tune?

Yeah. Some of the tunes were pretty complicated, and since they hadn't really played together as a group, they took some time figuring out the chords and making sure that everyone knew how to play on this break or that. A few of the songs were just one take. The one with [singer] Omara Portuondo—she was going to sing it once and that's it. And fortunately that worked out great. But they're all such fantastic players, we couldn't really lose.

How many days were the sessions?

About eight all together. We didn't have a lot of studio time. The studio is the

one down there, and it's booked nearly all the time. We worked 12, 13 hours a day, because it had to be right. It takes time to get to know one another. It takes time to plumb into it, to look in and see where the real stuff is buried. You can't do that overnight.

What did you do on the record back at Ocean Way Studios in L.A.?

I did a little overdubbing here and there to see if I could add anything. Like if a tune was a little weak in the low end, I might put some of my goofy instruments on there and try to catch a vibe that way, just to enhance it a little. Ocean Way has a couple of rooms that are big enough that we could more or less replicate the sound of the studio in Cuba, so it wouldn't be obvious that we were just replicating it sonically. But I must say, you don't want to touch this stuff too hard; you want to be gentle with it.

Why was it mixed at Livingston Studios in London?

Jerry has the same Amek board at Livingston. The Amek has a beautiful, transparent texture for recording, and in trying to mix back through other boards, we found we couldn't get back the full dimensionality of the recording until we mixed it on his board in his studio in London.

I think many of us think of most Latin music as being louder and more aggressive, but this has such a nice, almost pastoral quality, even on the tunes that really cook.

That's true. The music changed after the war [WWII] and became louder and faster, like music all over the world sort of did. But what we have here doesn't have as much loud percussion, and the pace is a little more relaxed than what you're talking about. But it's not lazy. When it's done well, this kind of music has a little edge to it, a little mystery to it and a slightly bittersweet quality. Otherwise, if you get too laid back, you end up sounding like a bunch of guys on the porch.

Were there older records that you used as a sonic model for the record?

Yes. Absolutely. But it's unattainable. Some of these Arsenio Rodriguez records that I love so much were probably cut in that room. There's an all-star session that was done in the '70s in that room with some of the same musicians we used—the piano player, most notably. It's some of the most incredible-sounding music I've ever heard in my life. And then there's also great stuff from the '50s, just like everywhere in the world. Somehow, a kind of synchronicity or appropriate mix of artistry and technology was achieved in the '50s, and then it went off in different directions after that and everything changed.

They started putting carpeting on the walls. Or experimenting with multitracking.

That's right. As far as I'm concerned, multitracking was the closing chord on good-sounding records. But we worked hard to make this one sound natural. Some of these older records that are mono that were cut right after the war and in the early '50s are just awesome. We were definitely going for that in a way.

What's next for you?

I want to try to do this some more—go back to Cuba or take some of these players out on the road. Ever since this album came out, a lot of these guys have been working steadily. The piano player has been touring Europe and getting standing ovations everywhere. Ibrahim is on tour all the time. This has very quickly opened up tremendous opportunities, which is pretty neat. But we've just opened the door a little. There's a lot more to explore. ■

—FROM PAGE 189, LOUIE BELLSON

we were there," Bellson recalls. "But when the record came out, we'd say, 'Where's the band?' We didn't realize the mixing and the editing was the most important thing. Gregg [Field] got me the best drum sound I've ever had in my life. Gregg stepped in and said, 'We need a good hour-and-a-half to get a good drum sound before anybody comes in,' and it had never been that way before with me. It would be where the guy would say, 'Hit the bass drum once, hit the tom-tom, the snare drum,' and boom. But that's not enough. It takes an ear like Gregg's, along with someone like Don Murray, to really know how to capture the sound of that drum set."

"I find so often, particularly in a situation where there are a lot of musicians playing live, the drummer is the person who suffers the most in the process," says Field. "When you're dealing with 24 tracks, I've often run across the situation where the brass and the reeds are individually miked, the piano is miked in stereo, the bass usually has a direct and a mic track, and five or six tracks are left for the drums. Traditionally, an engineer will mix the tom mics in with the overhead mics because they are simply running out of tracks, and if you try to add a nice reverb to the toms, then you're adding reverb to the ride cymbal, which really washes it out. Being a drummer myself, I'm particularly sensitive to wanting to make sure I get Louie's sound. I've been listening to him for 30 years, and I know his sound; I know what he likes, and I want to give that to him. When you turn on a traditional pop station or rock station, or even a smooth jazz station, it's as exciting to hear the music as it is to hear a really punchy, smashing recording. For so long, I've wondered why jazz musicians are not afforded the excitement of a really clean, punchy, present recording. It's like Louie said, oftentimes there's a lack of awareness among the musicians as to what can be done."

Field is adamant that budget should not be a drawback in producing a stellar recording. "We tracked the entire album in four sessions, so we're talking about 12 hours," he says. "Maybe you have to spend $50 an hour more to go to Capitol, but when you're talking about 12 hours, that's only $600. When you're talking about this being your life and your art and you're talking about saving $600 to go from a mediocre studio to the best, there's not even a question for me. If you don't have the money, save it and wait. There's also the fact that you want to be able to compete with what's out there. As an artist and a producer, I really can't afford to put out a recording that doesn't come up to that level. Capi-

PHOTO: SHARYL NOGAY

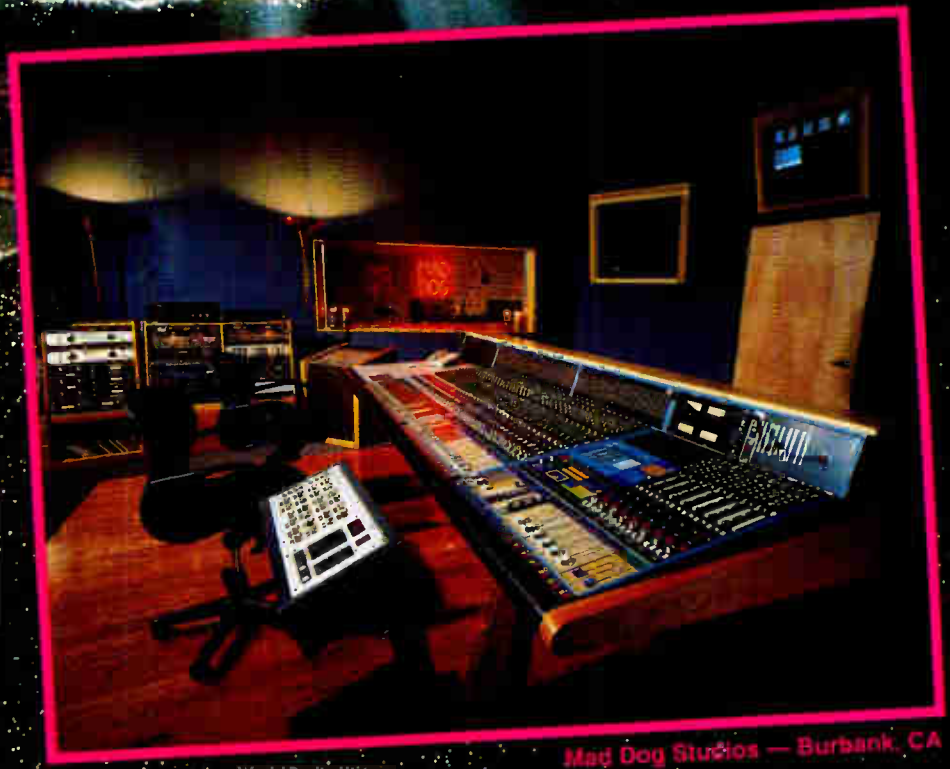
Producer Gregg Field at work

PELONIS SOUND & ACOUSTICS, Inc.

Future Disc Systems — Hollywood, CA

Interlock Studios — Hollywood, CA

Acoustics & Custom Facility Design



Mad Dog Studios — Burbank, CA

1997 Nominee

P.O. Box 30491
Santa Barbara, CA 93130
805.563.0505
FAX 805.563.9604

CIRCLE #148 ON PRODUCT INFO CARD

tol is a really comfortable place to work, and it is a room that is very understood by engineers. Don Murray has done countless records there, and he knows its shortcomings and the sweet spots. They have a great Neve board in there, which I really like working on and have used for 15 or 20 records."

For Murray, the objective was a comfortable playing environment. "I felt Louie would be most comfortable just within the band and not stuck away in some iso booth," Murray says, "which is important, especially for a big band where they're used to playing together and hearing each other in the room. It's important to create that same environment in the studio so they can feel good about the way they sound and not feel like they have to rely on headphones to hear somebody. I split the reeds and put them down one side so it was almost like a V, where Louie was at the point of the V, and on the other side we had the trumpets and the 'bones, so they were more or less aimed out into the room, not right at Louie. Louie could see everybody, and they could see him, and I think that worked out very well.

"Another nice thing about everybody recording in the room is you get a certain amount of leakage from other instruments into different mics," Murray continues. "That works out to be a little bit of a benefit because you get sort of a total ambience happening in the room, and you don't want a big band to sound totally flat or dead. You want to hear the room in the recording. So it helps if a little bit of the drums are getting out into the reed mics and the trumpets are getting into the drum mics a little, and it all works out in the end where you get an exciting ambience happening. I think that was achieved, and I think Louie felt good about being in the band and seeing everybody and being able to get his cues."

"You have to take into consideration that the musicians are used to hearing, sonically, the drums at a particular distance from where they are," adds Field. "If you completely change that variable, not only are you asking the musicians to play their best, but you're asking them now to make a sonic readjustment to their spacial environment. I've done big band records in the same studio, Capitol A, where I was playing on the loud side, and I found that my drums would leak into microphones that were 20 or 30 feet away. It would create a gymnasium effect and wash my sound out. It's a trade-off. If you put Louie in the booth and isolate him, you get a really clean,

punchy sound, but then you have this readjustment of, 'How do I listen?' We diligently worked on finding the best spot in the room where Louie's sound was controlled, so it wasn't spreading out all over the room, and yet, the musicians didn't even have to play with headphones if they didn't want to. On the walls of Capitol A are slats which you can open, which tend to diffuse the sound and help with that ambient drum or loud instrument washing around the room and being picked up by the mics."

In a situation such as this, it is also Murray's objective to maintain simplicity in the process. "I prefer the older vintage consoles like the old Neve 8000 Series," he says. "They have a richness of sound that is wonderful because of the way they made the electronics then. They sound great, the mic pre's are great, the EQ is great. Louie's project has been on a newer Neve, and I've tried to bypass as much processing as I can. I plug the mic into the mic pre, out of the mic pre to the tape machine and that's it. If I don't have to go through another piece of equipment, I won't. The concept is straight wire recording—keep it as simple as possible and get it to tape real simple. In a big band situation, I'd rather take everything flat to tape, at least the saxes and the brass, and if I need to do some EQ'ing, I'll do it in the mix.

PHOTO: SHARYL NODAY

Bellson's album was tracked in 12 hours.

"We used a lot of tube mics—Neumann U67s on the reeds," he continues. "Capitol has a very good selection of old vintage mics, and those old tube mics really sound great on saxophones: You get a nice, warm sound. Then I use ribbon mics on the trumpets—they cut through, but they're not piercing; they have a nice warmth. I want the sound to be punchy and warm, and you can get that with some of the older vintage mics."

While Field and Murray pondered the technical aspects, Bellson's main

concern was having to play the lengthy and complicated charts, a difficulty overcome by a rigorous pre-production schedule. "The worst thing for a big band to do is have a great arranger and come to the record date with 12 charts they've never seen before," Bellson says. "Even though the band is super, it's going to take hours and hours to get it. Then you put it down real fast and hear it six months later, after you've played it live for a while, and you think, 'Goshdarnit, I wish we had played it better.' It's important to lay it down the right way because you have to live with it." ■

—FROM PAGE 189, RESERVOIR

Despite the new direction, Ehrbar says, "I didn't feel like it was so big of a step away that it deserved to be called a different band or anything. I thought, 'What the hell, I'm doing it in my bedroom, it's another Reservoir record to me.'"

The creation of his sophomore release reveals an unusual variation on the modern Renaissance man. Ehrbar is a composer, singer and multi-instrumentalist, playing everything on the new album: drums, guitar, bass and keys. However, there's a flip side to that. "I'm a terrible guitar player and an okay keyboard player," he states frankly. He did not trust himself to be able to play guitar well through entire songs, "so I would get the tempo and just play the verse over and over again direct to DAT, go back and say, 'This one time, I actually nailed it and that's the one.'" He would then sample the good sections to his Akai S2000 and loop them. (Bass parts were done the same way, although those were mostly produced synthetically.) What makes the whole sampling process interesting in this case is that Ehrbar didn't use any sequencing, which means he was triggering things as he played them, offering an unusual twist to modern electronica that is charming in its backwardness.

For the guitar, bass and drum parts (the latter culled from both live and programmed tracks), he played by holding down the key assigned to that sound, creating the loop, then switching to a different key for the chorus—"Which is really, the way I understand it, the same thing you'd be doing when programming a sequencer except there are more rough edges when you actually do it with your fingers," he notes. "That's the reason I do it that way—so it's not just this perfect, machine-like transition. There are pops and the rhythm jumps here and there. I kind of like that."

Given his recording and performing approach, it is natural that Ehrbar's songwriting methods are also offbeat. "I'm a drummer, so I don't write on acoustic guitar, and I don't write conventionally," he explains. "Usually, I'll have a really cool riff that will become either an instrumental or is decent enough to become an actual song, or I'll have a whole song in my head from start to finish that just takes me awhile to figure out how I want to present it. I write a lot of stuff on bass, actually, because it's so easy to play. Most of the songs on the album were written that way, just on bass, hacking my way through the chords. And then from there I'll decide [if the part] is guitar, keyboards, piano, and take it from there. Any chance I get to throw in a long instrumental break, I usually do it just because it's kind of fun.

"With the first song, 'Go Back,' I'm sure I could have gone on forever, just built layers upon layers," Ehrbar says. "It could have been a 20-minute song, but I think it would have been a little too much. It was already seven or eight minutes by the time I got to the last chorus. But I try not to look at how long these things are. A lot of times, I'll do the end and just jam for a while. If there's something at the very end that I really like, I'll take the two, three min-

utes to get there, just to make sure that little cool spark at the end is on the song, even at the risk of going for three minutes too long. I'd rather keep it the way it was than edit it."

Ehrbar plays a Korg Delta keyboard. He uses a Roland PC-200 sampler for loops and as his MIDI controller for a rack-mounted Roland Vintage Synth Module (which he uses for "coloring" and "quick lead parts"). For effects, he has an FXR Elite multi-effects unit, along with an MXR Phase 90 pedal and a Boss DD-5 delay pedal for processing keys and guitar. Prior to sampling, the various instruments were recorded using Radio Shack PZM mics. Upon recording to 4-track, he played the songs live through the sampler to create a stereo bed onto two tracks, leaving the other two on the 4-track open for vocals. "I think on only one song I actually bounced [tracks]," he says. "I had a full instrumental track on four tracks, bounced it to DAT, then came back and added two more tracks of vocals and mixed back to DAT."

To mix from the sampler to the 4-track, he employed a Mackie 1402-VLZ board. His S2000 has eight outputs (and no internal effects), so he ran each through one channel on the mixer to give the right amount of reverb and delay for each sound. Generally, he had two or three tracks of drums, one track each of guitar, bass and keys, and "maybe I'd have one channel coming out of the sampler that's super-soaked in reverb, and use that for a couple of weird scenarios."

Ehrbar feels that you can get a good sound out of a 4-track if you just test the limitations of the machine. With this in mind, he pushes the drum levels as much as he can. He believes the snare and kick "should be breaking up a little bit, because by the time it gets to the final mix, you're not going to always hear the little crackling on the snare."

Another interesting little twist is his love for the RAT distortion pedal, which he even uses on clean tracks, "mainly to level boost. But for vocals and everything, I'll pretty much put everything through the distortion pedal and give it the tiniest bit of grit, almost so you can't notice it. It always jumps it up; especially for 4-track, you need that."

Ehrbar has his limitations, both in the studio and live, where he plays alone, but he knows that and works within them to stretch his own abilities. "To go out on a limb," he says, "I'm trying to take songs that are pretty good and play them in a weird way." And to his credit, he's doing it well. ■

COAST TO

L.A. GRAPEVINE

by Maureen Droney

This month's L.A. Grape takes a brief survey to see what's up at some of the Southland's top mastering houses: We dropped in at A&M and Future Disc Systems for this month's installment. Next month, it's Oasis and Precision.

At A&M, Dave Collins was setting up for the day's project with Spoon, changing back to ½-inch heads on the 2-track. Although he gets about 70% of his masters coming in on ½-inch analog, lately he's also seeing a resurgence of ¼-inch, 30 ips material. "It's almost as economical as DAT," he says, "and it absolutely sounds better, making it a good choice for some people. For digital mixes, my first choice is the PCM9000 format if they are going 20-bit—most clients I've worked with repeatedly I've been able to get to go to PCM9000."

Collins has been with A&M for ten years and in his present suite, which features A&M-customized equipment, for three. "That's something that sets us apart from the other guys," he says. "We've optimized, tweaked and modified, and when we couldn't find something we were happy with on the market, we built it. We're kind of old-fashioned here, with a lot of tube electronics, including an A&M custom vacuum tube playback system. When I get something I like, I stick with it. Our orientation is toward getting the absolute

—CONTINUED ON PAGE 210

PHOTO: MAUREEN DRONEY

Dave Collins at A&M

NY METRO REPORT

by Dan Daley

PHOTO: JOHN ABBOTT

Grover Washington Jr. lent his talents on sessions for Freddie Cole's upcoming Fantasy Records release at Clinton Recording (New York City). Todd Barkan produced, Troy Halderson engineered, and Ken Ross assisted.

It is with sadness that this space notes the passing of Ned Liben, aka EBN, an engineer, producer, composer and musician who was as much a part of New York's recording and creative community as anyone ever has been. Liben, 44, died on February 18; the cause of death was reportedly a heart attack. Liben founded Sundragon Studios in Manhattan in the 1980s. As a for-hire facility, the studio was the site of sessions for The Ramones, Brian Eno and Talking Heads, among others. It also served as the

—CONTINUED ON PAGE 212

COAST

SESSION SPOTLIGHT

by Barbara Schultz

THE DERAILERS AT ARLYN STUDIOS

"There's a difference between imitation and carrying the torch, and this band is carrying the torch." That's how engineer Stuart Sullivan describes The Derailers' place in the pantheon of country and rockabilly acts. The Derailers are Austin's finest—a tight quartet of kickin', soulful musicians whose rhythmic, guitar-based arrangements, top-notch songwriting and infectious harmonies do more than remind you of Buck Owens & His Buckaroos.

The Derailers recorded their latest Watermelon/Sire Records release, *Reverb Deluxe*, with producer Dave Alvin in Austin's Arlyn Studios. Recording and mixing were completed in just two weeks by Sullivan, who has been living and

—CONTINUED ON PAGE 215

The Derailers recorded their recent release, Reverb Deluxe, in the vintage API-equipped Arlyn Studios in Austin, Texas.

SESSIONS & STUDIO NEWS

Stepbridge Studios in Santa Fe, N.M., was founded in 1986. Studio A, recently refurbished, is a large live room with two iso booths. Control A, right, is equipped with an SSL E with G Series computer and SSL automation, a Neve BCM-10 sidecar, Tannoy 15-inch Time Align monitors and Genelec 1031a near-fields. Recorders include an Otari MX-80 24-track and 32 tracks of ADAT. The facility offers a large collection of mics and outboard gear and has hosted sessions for James Taylor, Ottmar Liebert, Herbie Mann, Robbie Robertson and Dwight Yoakam, among many others.

SOUTHERN CALIFORNIA

Fiddler's Green cut their next release for Polydor in Studio A at Sound Image Recording (Van Nuys) with producer Jim Crichton, engineer John Henning and assistant Chris Morrison...Qwest artist Tamia mixed a B-side at Encore Studios (Burbank) with producer Sam Sapp and engineer Rob Chiarelli...Drop Zone Records artist Dahru tracked with producer Scott Mayo and engineer Michael "Jazz" Nally at Track Record Recording (North Hollywood)...In Studio A at Image Recording (Hollywood), engineer Chris Lord-Alge mixed for Bad Religion's new one (due in May), assisted by Michael Dy...Rasputina tracked for Columbia at Grandmaster Recorders in Hollywood with producer Chris Vrenna and engineer Critter. Wade Goeke assisted...Burbank's Ocean Studios had Martin Kember in tracking and overdubbing for his Warner Bros. debut with producer Reed Vertelney, engineer Paul Ericksen and assistant Robert Breen...Sophie B. Hawkins worked on her next, self-produced Sony Music release in Studio 1 at

—CONTINUED ON PAGE 216

5th Annual Latin-American Pro Audio & Music Expo

Miami'98

Miami Convention Center
May 29 - 31, 1998
Miami, FL

Miami, this unique cosmopolitan city is the principal gateway to and from Latin-America. It is USA's Latin-American music capital and boasts the most actively growing musical and post-production population, third, only to New York and Los Angeles. Its people, Latin; its music, Latin; and its business, very Latin, all which make Miami the perfect choice for our fifth and most significant show to date.

Catering to Central America, the Caribbean and South America, Miami will allow visitors from all countries to attend the show in a neutral site. Manufacturers will be able to service all Latin-American countries, and the window of opportunity will be broadened, with a focus on Latin-American distributors, dealers and consumers alike.

SSI will maintain the highest standards for its seminars, featuring highly renown professionals, while continuing to lead in bringing education and information to the rapidly growing and very important Latin-American market.

We invite you to participate in what will be yet another groundbreaking event for SSI and music professionals, as we look at this great site as the hottest focus of the Latin-American music industry, the vibrant city of Miami.

Official Hotel.

HYATT REGENCY MIAMI
AT MIAMI CONVENTION CENTER

SSI Studio Sound International

400G High Point Dr. Hartsdale NY 10530 USA · Tel. (914) 993-0489 Fax: (914) 328-8819

Contact: Chris Adams

Specify if Exhibitor or Visitor Information

NASHVILLE SKYLINE

by Dan Daley

With so much news about new studios in Nashville, it's a nice change to talk about some of the ones that have been here awhile. In 1998, **Quad Recording celebrates its tenth year** since it was reopened as a subsidiary of Sound Stage. The original Quad was founded in the early 1970s by producer/bassist Norbert Putnam and producer/keyboardist David Briggs, and it quickly became Nashville's first true alternative studio—alternative to country, that is, doing records for artists like Neil Young and Joan Baez. Putnam and Briggs represented a changing of the guard, being part of the second generation of A-Team musicians who came to Nashville from the Muscle Shoals area in the late 1960s. These musicians began laying the groundwork for country's collision with rock later in the decade (the second collision, actually, if you count rockabilly 20 years earlier). Quad closed its doors in 1984 as Nashville's music industry was running out of steam in the wake of the *Urban Cowboy* phase.

In 1988, Sound Stage owner Ron Kerr and an assortment of other investors took over the one-room studio and hired Belmont University music program graduate Kelly Pribble to reopen and run it. "I went from intern to studio manager in about a week," Pribble recalls. Within two years, the studio (officially dubbed Center Stage Associates, but still known to all as Quad) had expanded into the building next door and added three new rooms. Business became centered mainly around tracking and overdubbing, as studios began to specialize, emphasizing the facility's expanded assortment of vintage consoles (including a Neve 8068, a Sphere Eclipse C and the last Trident A-Range console ever made, which was purchased from L.A.'s Cherokee Recording). A fourth console, a TAC Magnum, qualifies as mid-level vintage. Two tracking rooms are in the two main structures, and two smaller overdub rooms were built in the space between the original and expansion buildings.

Pribble says Quad is not unaffected by the rate and density crunch Nashville's studio community is experiencing now. "The real effect is seen in how so many studios that used to go for $1,200 to $1,500 per day are now selling in our traditional rate range of about $750 to $800 per day," he says. "It's not hard to find SSL rooms in Nashville going for $400 per day." However, Pribble cites advantages including a low debt load and overhead that help give the studio better margins even at lower rates and even with seven employees. "We have the vintage niche going for us," he says, "and the fact that this studio still has a certain vibe to it. It's become famous as being the studio that people make comeback records or career-breaking first records in. Charlie Daniels came here ten years ago and made his comeback record; John Michael Montgomery and Faith Hill did large parts of their first records here, and Amy Grant did her *Hearts in Motion* crossover record here. It still has the non-country vibe that Norbert and David put in here."

615 Productions nabbed an Emmy Award for its theme for A&E Channel's *Biography* series last year, and owner Randy Wachtler said that more post work has enabled the studio to expand, opening a new Russ Berger-designed four-room facility on the Row. Two recording rooms and two sound design spaces will cover about 8,000 square feet.

Other than the talents of him and his staff, Wachtler says that 615 has also benefited from a number of trends in recent years, including a steady migra-

tion from Los Angeles that has changed the perception of Nashville by outsiders and has brought more post facilities and work to town. Still, attracting audio post work remains something of an uphill battle unless it's original music work or is in conjunction with local talent being used for ADR and other applications. "They're coming here for the music, which is the way it's always been," he says.

Nashville now has its first dedicated tech/maintenance company with a fixed location. Interface Audio was formed by Sound Stage chief technical engineer Warren Rhodes in mid-1997; Rhodes had worked out of his home until late last year, when the service moved into the former Down Stage studio site on Music Row. Rhodes and three employees cover studio maintenance, design, wiring and related tasks, and local pro audio/MI dealer Corner Music has set up a demo room in the facility. Studio designer Jeff Willis says the response has been very positive, with equal amounts of work coming from both conventional and private studios in Nashville, and some calls from as far away as Memphis and Los Angeles, where IA wiring specialist Charlie Brewer once worked. The company is also in the process of attempting to establish itself as a rep for several pro audio lines, but the primary focus will remain on technical services. "It's beginning to look as though staff technical engineers might be a thing of the past in Nashville," says Willis.

The local infotainment columnist in the *Tennessean* is constantly stressing that "there's always a Nashville connection." Sometimes there's a New York one, as well. Manhattan post-production impresario Howard Schwartz recently recalled being in on the start-up of SPARS back in 1979, telling his favorite story about the organization's early days and about the late, great Owen Bradley. "At the time, SPARS had a requirement, since discarded, that you had to be 24 tracks," Schwartz says. "I called Owen and told him about the organization and the requirement, and Owen says to me, 'Some days we're 21 tracks, some days we're 23 tracks. I don't think on any day we're completely 24 tracks.'" ■

Send Nashville news to Dan Daley at danwriter@aol.com or fax 615/646-0102.

—FROM PAGE 206, L.A. GRAPEVINE

top performance out of analog tape."

Collins uses DB Technologies converters and currently likes Quested speakers. "They're one of the best small speakers I've found—clients relate well to them because they're similar to NS-10s, but they're better in every way."

An interesting device in Collins' rack is a redone SSL stereo compressor. "I always liked the dynamic action on the unit," he says, "but I never thought they sounded great. This one does. We replaced VCAs and audio electronics and also changed the attack and release times a bit. That's value-added at A&M: We've got the technical chops to get into these things and optimize for what we want them to do."

Like the other engineers we spoke with, Collins finds himself doing lots of last-minute digital editing. "I do lots of flying, and, of course, editing out bad words in a song is a staple. Also overdubs. I've recorded vocals in this room a few times on the day of the mastering sessions. For example, on Nuno Bettancourt's album, we were listening and he said, 'It needs background vocals right there,' so we did them—in effect, a zero-generation overdubbing to the digital master."

Collins doesn't do a lot of sessions alone. "I find my clients usually attend. Sometimes it's the first time everyone's come together and heard the whole album finished, and that can be fun. Also, people want that last chance, that last creative opportunity to keep their hands on."

Recent projects have included a soundtrack song for Melissa Etheridge and work for Jane's Addiction, Wyclef Jean, Big House, John Waite and Sting.

Future Disc's Gary Rice, co-owner and operations manager, gave the tour of six suites, and chief mastering engineer Steve Hall took a break from working on the soundtrack CD for the film *City of Angels* (with songs by the Goo Goo Dolls, Alanis Morrisette and others) to chat for a few moments. Hall's self-designed studio is the 16-year-old Future Disc's centerpiece, featuring a custom Class A console, as well as a Weiss digital board, a customized ATR 100, Sonic Solutions digital editing and DVD systems, lots of Manley EQ and compression, and a custom, four-way, full-range monitor system.

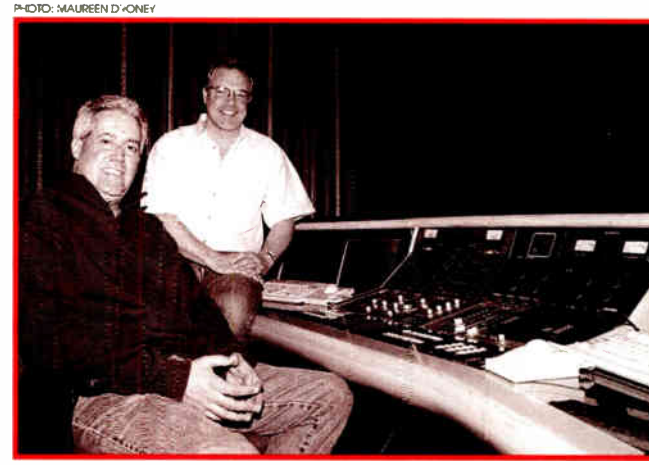
When queried about some of the issues facing mastering engineers today, Hall responds, "It used to be just one big purchase—you bought a lathe, a cutting console and a cutting rack, and you were good for ten or 20 years because things didn't change much. Now with digital technology, there are new and better A-to-D and D-to-A converters every six months; there's new software every few months; and with the oncoming DVD format, everything has to gear up from 44k to 88 or 96k, or even double that."

Does a successful mastering engineer with a large and loyal clientele still feel the pressure to keep up with all that new information? "Absolutely," Hall says. "You can stick with just classic equipment if you want, but to take advantage of the technology that's now available and grow with it is really important in this industry."

"We were fortunate," adds Rice. "When we started, we came in at a point when we could shift a bit toward a higher-tech, more sophisticated setup. We could buy into new equipment when most of the other mastering rooms had already made their investment. Steve's been very aggressive that way; he designs our systems, and he's involved with the acoustics, as well. Also, we get involved with the audio lines. For instance, we have regular meetings with Sonic Solutions, and we're working with their DVD movement; also with Pacific Microsonics' HDCD processor—we've been using it for a few years, and now we have it in all our main rooms. It sounds pretty phenomenal. We've had good success with it, and we also like the quality of their converters. It definitely gives you a little bit of an advantage. We use other converters—Manley, DB Technologies, different flavors for different applications—but 99 percent of the time we use the HDCD converter."

Future Disc has been

PHOTO: MAUREEN D'ONEY



Gary Rice (L) and Steve Hall at Future Disc

seeing a rise in the proportion of analog ½-inch masters received. "It used to be 50/50," Hall observes, "but right now, I'd say it's about 70 percent 30 ips, ½-inch analog. We get some Sony 9000, some DA-88, and even some stuff burned on CD-Rs or on Sonic. The analog does have an advantage with the HDCD. When you go onto a DAT machine, you've already done the damage—you're already stuck in that 16-bit domain."

Future Disc is also cutting lots of vinyl these days, with one room manned by Kevin Grey and dedicated to cutting lacquers. "Alternative music has really picked up on lacquer," Rice says, "and we also do a lot of 12-inch dance."

Future Disc's studios, staffed, along with Hall and Grey, by Tom Baker (All-4-One, Garbage, Marilyn Manson) and Kris Solem (Live, Mokenstef, Tony Toni Toné), are all linked by network ties. "That way we have less transfer time and no generation issues," Rice says. "We can do identical one-off masters; the production copies will be identical, with no chance for human error."

Other recent Future Disc projects have been the *Rumours* 20th anniversary CD (featuring artists from Elton John to Sister Hazel, Shawn Colvin and Jewel), the Stevie Nicks boxed set, new work from Green Day, Warner Bros.' new band Stegasaurus and the soundtrack for *The Wedding Singer.*

The Grapevine mastering forum will pick up next month with visits to Precision and Eddie Schreyer's Oasis. In the meantime... ■

Fax L.A. news to Maureen Droney at 818/346-3062 or e-mail msmdk@aol.com.

—FROM PAGE 206, NY METRO REPORT

base for Liben's own musical pursuits, including Riff Raff, an intense and ebullient rock band he created with Doug Lubahn and Werner Fritzsching, whose two releases he engineered and co-produced. Liben was also one half of the band EBN/OZN. Liben was intrinsically curious and innovative; he was one of the first to use guitar synthesizers and the Fairlight CMI. He opened Sound Over SoHo last fall, where he scored films and commercials. Ned was special, and he will be missed. He is survived by a wife and a 2-year-old son.

CBS has been quiet about it, but for the past two Winter Olympics, the engineers at **Howard Schwartz Recording** (namely, Marty Newman and Jeff Peterson) have designed, built and, ultimately, staffed a portable audio post suite for use by CBS at the International Broadcast Center in Nagano. The room was built in New York and shipped—everything but the walls—to Japan. On January 9, chief engineer Newman flew to Nagano to supervise the room's installation; later, a team of mixers assembled by HSR for CBS, including Kevin O'Leary, Charlie D'Assario and Jeff Palmer, were dispatched to Nagano for the duration of the Olympics to run the suite. CEO Howard Schwartz and COO Jeff Cohen supervised the project. HSR functioned in a similar capacity for CBS at Lillehammer four years ago.

A Tree Grows In Brooklyn: New York's largest borough may no longer have the Dodgers (who needs 'em, anyway?), but it's about to have a major new recording facility. Construction is just beginning on **Platinum Factory**, a two-room facility that's part of the Bedford-Stuyvesant Restoration Corp.'s physical plant overhaul. The nonprofit community corporation (the largest in the U.S., established in the mid-1960s with some of the first federal urban renewal funds set aside by the Kennedy administration) had operated a small MCI-equipped basement studio as part

Balanced Power
+
Balanced Budget

U.S Patent No. 5,640,314 (other patents pending)

Suggested List Price $879

Equi=Tech Model ET1R

Now all the noise reduction benefits of balanced power are available in a compact, affordable unit with plenty of punch for a variety of applications. With a full 1000-watt capacity, the Model ET1R can easily run a musician's rack with keyboards and mixer, a small mastering facility or even a small project studio. The ET1R is also ideal in live sound applications for use with front-of-house electronics and back-line equipment. Each unit comes with a 2-year parts and labor warranty, lifetime replacement on the power transformer and an unconditional 30-day money-back guarantee.

(Visit our website at http://www.equitech.com for more technical information)

Model No.	Output V.	Capacity	Input Line	Plug Type	Isolation (CMR)	Surge Protection	Weight
ET1R	120VCT	10A*	15A 120V	NEMA 5-15	80dB	240 Joules	30lbs.

*Intermittent Duty: 10A - Continuous Duty: 8.3A – Dimensions: 16 x 12.5 x 3.5 (2 rack spaces)

***Equi=Tech* • The Pioneer of Balanced Power.**

See the Model ET1R at the ***Equi=Tech*** booth #1736 at the NSCA Convention in Las Vegas, April 26-29,1998.

Equi=Tech Corporation • P.O. Box 249 • Selma, Oregon 97538 • Tel: 541-597-4448 • FAX: 541-597-4099 • http://www.equitech.com

CIRCLE #160 ON PRODUCT INFO CARD

of its center for several years—a community-oriented studio where local Caribbean, Latin American and other ethnic artists recorded. However, according to facility designer Fran Manzella of FM Design, that studio was located directly over the A train's tunnel and was subject to significant vibration and isolation problems. "The new studios are on the second floor in another part of the center," says Manzella. "The corporation's president, Kevin Griffith, wants to bring this out of the basement (literally and figuratively), make it Brooklyn's first world-class studio facility and use it to attract major recording artists and producers from all over." The facility's main studio will feature an SSL G Series console; a second, smaller room will likely house a Mackie/Pro Tools combination.

Sony Music Studios completed the renovation of its Main Stage recording and video facility. The renovation includes 96 microphone runs, multiple control room interfaces and a state-of-the-art lighting grid system. In addition to hosting shoots for music video productions, including VH-1's *Hard Rock Live* and PBS's *Live by Request*, the Main Stage is also a heck of a tracking and scoring room, and subtle but significant acoustical improvements were also made, according to director of audio engineering David Smith. "The space had been made intentionally dead in order to make ADR work easier," Smith explains. "We removed a lot of the sound absorption to increase the room's reverb tail. It's now more appropriate for large orchestral tracking sessions."

The Blues Brothers take New York: It may have been set in Chicago, and it may have been shot in Toronto, but most of the music for the recently released ***Blues Brothers 2000*** sequel was recorded in New York City. Almost all of the original bandmembers from the first film—including Lou Marini and Paul Shaffer—and several from the original recordings of the score songs (such as Steve Cropper and Donald "Duck" Dunn, who performed on Aretha Franklin's "R.E.S.P.E.C.T." and Wilson Pickett's "634-5789") were on hand at Sound On Sound Recording to re-create those and other tracks for the film's soundtrack. Shaffer, who also appears in the film, produced, with Harvey Goldberg engineering.

The sessions elicited the following observation about how the city's studio base has changed. "In New York now, there's a handful of big studios and a whole lot of smaller ones," says Goldberg, who started out as a staffer in 1970 at the late, great Media Sound and was the primary engineer on Kool & The Gang's early funk hits as well as milestone jazz (Lonnie Liston Smith) and rock (Frampton, 'Til Tuesday, Soft Cell) records. "But the sound of the records that make up this movie comes from Muscle Shoals, which was a very tight-sounding, mid-sized room. Finding that and re-creating that sound is something of a lost art these days, even in a place like New York. You have to use a lot of baffling and muting of the room ambience, yet still let the instruments have some ring and be able to breathe. In fact, it's the overtones of the drums that contribute a lot to the overall sound of those records. They get covered up by other instruments in the mix, but they're still there and they definitely have an effect on the way the final record sounds. People try so hard now to separate sounds by either taking everything direct, like with drum machines and synths, or by doing every part as an overdub. But I tell you, there's nothing like having everyone playing together in the same room at the same time."

Goldberg put the four-piece horn

section into the large iso booth in Sound On Sound's main-floor Neve VR studio and set up everyone else in the studio and tracked them together. "There was some bleed," he says. "There had to be, with everyone playing that close together. But not so much that if we had to fix something you could hear the ghost of the original part. Tracking this way is what made those records sound as good as they did, and, along with having a lot of the same musicians playing, it's what made the film's soundtrack sound as good as it does." ■

New York items? Fax to East Coast editor Dan Daley at 615/646-0102 or e-mail danwriter@aol.com.

—FROM PAGE 207, SESSION SPOTLIGHT

working in Austin since the mid-'80s; his experience includes recording dozens of albums for traditional blues label Antone's, as well as punk and rock records with producer Paul Leary and two albums for country guitar wizard Junior Brown.

Sullivan set The Derailers up in Arlyn's 25x35-foot front recording room, which has windows to the control room and to three iso rooms. Bass player Ethan Shaw, drummer Terry Kirkendall and lead guitarist/backing vocalist Brian Hofeldt played together in the main room, with the guitar amps placed in a back room. Lead singer Tony Villanueva and guest rhythm guitarist Casper Rawls each played in an iso booth. (Pedal steel, accordion and fiddle parts were overdubbed later, along with final vocals.) "Visual, as well as physical, proximity were of primary importance, because they're a really live band," Sullivan says. "That worked well in the front room at Arlyn."

Arlyn also offers a mid-sized recording room and, in back of that, a large, concrete, very live room. Sullivan and the band made use of all the rooms to get different sounds and amounts of reverb. "A couple of the songs had handclaps," Sullivan explains, "so we would do handclaps in each of the three rooms: the front room, which was dry and tight; the great big live room in back, which would have a long tail; and then the third room, which would have a short tail but a lot of coloration. Then I'd have three tracks of claps, so when I mixed, if we wanted a little longer or shorter reverb, or a tighter sound, we would emphasize whatever claps worked. We did this on some other percussion, too.

"As much as possible, we tried to use natural room ambience rather than recording dry and dialing in reverb later. On drums, for example, even though we were in a mid-sized room, I used Neumann U87 room mics a great deal to hear a kit sound rather than individual drums."

Sullivan says Arlyn offers a great mic collection, too. He used a Neumann U48 on Villanueva's vocal. "But for Brian [Hofeldt]," he says, "he's got quite a stronger voice, and the 48 overloaded, so I went with a 47 FET, which can handle the pressure but still has warmth."

Guitars were miked mainly with Shure SM57s, and for drums, Sullivan says, "I wanted some of that warm feel that you get from the old records, without too much of the zing, so I used a pair of [Neumann] 64s as overheads, the little tube version of the 84, and that gave me rounder, smoother top end."

Sullivan recorded the band to the studio's Studer A820 machine and mixed to an Ampex ATR102 ½-inch. Sullivan says Arlyn has a nice selection of vintage outboard gear: three black-face UREI 1176s, LA3As, LA2As, etc. But he did bring some from his own arsenal: four Daking EQ/preamps, which he says were the main preamps he used outside of those in the studio's API console, and a couple of Neve 1073s. "I was conscious of trying to match things with particular preamps," Sullivan says. "I didn't use the Daking on every acoustic guitar; occa-

sionally, one was a Neve. Electric guitars were almost all API."

Sullivan says that working in Arlyn, and with Dave Alvin, on this project made the entire process comfortable and smooth. He admires Alvin's ability to help arrange complicated guitar parts and to keep the ball rolling toward their budgeted two-week deadline. For his part, Sullivan was able to keep the players at ease because he is so intimately familiar with Arlyn—and because he brings a bit of home into the studio. "I bring my dog, Arkadelphia, to all my sessions," he says. "She's an old dog, and she just hangs out. I also like bringing in household lamps and changing the lighting—the kind of stuff that makes people more comfortable, more at home, so it doesn't get too serious and the band can just concentrate on the music. I can get too close to stuff, worrying about the sonics, but in a case where the music is good enough, like with The Derailers, I don't want *them* to worry about the sonics. The music is what counts, and, boy, I like listening to this record." ■

—FROM PAGE 207, SESSIONS & STUDIO NEWS

Ocean Way (Hollywood) with engineer **Kevin Killen** and assistant **Al Sanderson**...

SOUTHWEST

Atlantic Records artist **Kacy Crowley** began recording and mixing for her next release with producer/engineer **Dave McNair** at **Blue World Music** (Austin, TX)...**Howlin' Tommy Rox & the Phoenix Coyotes Band** mixed an album benefiting the Arizona Special Olympics and the Phoenix Coyotes Goals for Kids programs at the **Conservatory of Recording Arts & Sciences** (Tempe) using Hafler P7000 and P3000 amps...

NORTHEAST

At **Bopnique Musique** (Chelmsford, MA) producer **Anthony Resta** worked on three songs with producers **Jeff Calder** and **Mark Ceasar** for German soprano **Deborah Sasson** (BMG Europe). The blend of classical, trip hop and techno was the brainchild of excecutive producer and manager **Jean Rennard**...Polydor artists **Buffalo Tom** spent five weeks tracking an upcoming release in Studio A at **Bearsville Sound** (Bearsville, NY) with producer/engineer **David Bianco**. **Cracker** were in the studio, as well, tracking with producer **Don Smith** and engineer **Martin Pradler**...**A Tribe Called Quest** recorded new material at **River Sound** in New York City. **Q-Tip** produced, and **David Kennedy**

104TH AES CONVENTION

MAY 16-19, AMSTERDAM RAI

50 years of Audio

Join and celebrate with the Audio Engineering Society 5 decades of technology with the world's most informative convention.

- Over 250 exhibitiors
- 130 Technical papers
- 14 Exciting technical tours
- 16 Conferences sessions
- 17 Workshops
- Educational Fair & student programme, etc...

Lastet information, convention programme, pre-registration and purchase of tickets for the 104th AES festive events are available 24 hours a day, 7 days a week on the AES website : http://www.aes.org

MORE INFORMATION (EXHIBITION & PROGRAMME)
104TH AES CONVENTION
Zevenburderslaan 142/9 - BE-1190 Brussels, Belgium
Tel : +32-2-345.7971 - Fax : +32-2-345.3419 - e-mail : 104th_info@aes.org

PHOENIX

INNOVATION & IMAGINATION

November 13-15, 1998

AUDIO @ LDI98...

HEARING IS BELIEVING!

Break the sound barrier and take audio beyond the cutting edge at LDI98, North America's largest trade show for entertainment design and technology. See the best in professional audio equipment by the world's leading manufacturers - past and current LDI exhibitors include: Aphex Systems, Clear Com, Crest Audio, Sennheiser/DAS Audio, Eastern Acoustic Works, EVI, GEM Sound, Level Control Systems, Meyer Sound, Neutrik, Professional Audio Systems, Soundcraft/Harman Group, Numark, BGW Systems, Community Professional Loudspeakers, QSC Audio, Samick, Turbosound and Cerwin-Vega. From hot new products to in-depth workshops and hands-on design tutorials, LDI98 puts the sound in entertainment.

LDI98 PHOENIX

PHOENIX CIVIC PLAZA
Nov. 13-15 (Exhibits)
Nov. 12-15 (Workshops)

www.etecnyc.net

Sponsored by: Lighting Dimensions, Theatre Crafts International, Sound & Video Contractor, Mix and ESTA/Entertainment Services & Technology Association

Together with these other INTERTEC®/PRIMEDIA Publications: Millimeter, Broadcast Engineering, World Broadcast News, Video Systems, Electronic Musician and Shopping Center World

PLEASE SEND ME MORE INFORMATION ABOUT LDI98

☐ Exhibiting ☐ Attending

Name

Title

Company

Address

City State

Country Zip

Phone*

Fax*

E-mail

* Include country and city codes

LDI98 • Intertec Trade Shows & Conferences • 9800 Metcalf Ave. • Overland Park, KS 66212 • 1-800-288-8606
Fax: 1-913-967-1900. For programming updates as they occur, call FAX-ON-DEMAND at 1-800-601-3858. (Available after June 1st, 1998)

The Ziggens recorded their new Skunk Records release, Pamona Lisa, at Your Place or Mine Recording (Glendale, Calif.) with producer Elliot Easton. In the studio are (clockwise from bottom right) Bert Ziggen, engineer/studio owner Mark Linett, Easton, Brad Ziggen and John Ziggen.

engineered. John Scofield was also in mixing a new album with producer Lee Townsend and engineer Joe Ferla ..Patty Larkin mixed a song for the *Sliding Doors* soundtrack with engineer Ben Wisch and assistant Rick Pohronezny at Bear Tracks Recording in Suffern, NY...Jillian recorded three tracks for her new RMM release with producer/composer Rob Mounsey at his New York studio...

NORTH CENTRAL

Sony artist Hardeman completed a new album at Chicago studio Hinge with producer Frayne Lewis and engineer Steve Weeder...A&M recording artists Mint Condition mixed two new cuts for a "Best of" album (due later this year) with Madjef Taylor in Studio A at Flyte Tyme in Minneapolis, MN. At his own studio, Madjef Productions (also in Minneapolis), Taylor tracked and mixed Propell Records act Of Age with producer Curtis Dowd...At Chicago Recording Company, Fugee Wyclef Jean recorded Sony act Destiny's Child, and The Jesus Lizard recorded and mixed their new Capitol album with producer Andy Gill. Jeff Lane engineered on both sessions...

SOUTHEAST

Illeagal worked on their new album at Entertainment International Studios in Smyrna, GA, with producers Track Team, engineer Jan Nerud and assistants Andrew Metcalfe and Mary McShane...Guitarist/vocalist Bob Kissell put the finishing touches on his first solo release at Grooveland (Orlando, FL), with engineer Terry Bourcy...At Sound Emporium (Nashville), Miranda Jackson tracked for Royalty Records with producer R. Harlan Smith and engineers Clark Schleicher and John Skinner...Chlorine overdubbed for Mercury at Masterfonics (Nashville) with producer Dan Huff, engineer Jeff Balding and assistant Mark Hagen...At Memphis' House of Blues Studios, producer/engineer Greg Archilla was ensconced in Studio A recording RCA artists Trinket. Studio D has been busy with a project for blues artist Eric Jerardi, produced and engineered by David Z...Emerald Sound in Nashville had Clay Walker in tracking for Giant with producer James Stroud and engineers Julian King and Rich Hanson... Chante Moore tracked for EastWest Records with producer Keith Sweat and K.J. at the former's studio, The Sweat Shop, in Alpharetta, GA. Karl Heilbron engineered...Phlx remixed songs with engineer Rob Tavaglione at Catalyst Recording (Charlotte, NC)...At The Sound Kitchen (Franklin, TN), Wheels mixed for Warner Bros. with producer Andy Byrd and engineer Bob Tassi...Cowboy Mouth mixed for MCA at Ardent Studios in Memphis, with producer/engineer John Hampton and assistant Matt Martone... Sister Hazel cut a track for Atlantic Records' Fleetwod Mac tribute at Miami's Criteria Studios (where the Mac's *Rumors* LP was partly recorded) with producer/engineer Paul Ebersold. Chris Carroll assisted...Singer/songwriter Billie Myers recorded for her Universal Records debut, *Growing, Pains*, at The Gentleman's Club in Miami with producer Desmond Child and engineer/studio manager Charles Dye...Ocean Way Nashville was the site for recent sessions for John Michael Montgomery (producer Csaba Petocz, engineer Joe Chiccarelli), Kenny Wayne Shepherd (producer Jerry Harrison, engineer Steve Tillisch) and Deana Carter (producer Don Was, engineer Steve Marcantonio)...

STUDIO NEWS

NRG Recording (North Hollywood, CA) is installing an SSL 9000 J in its new Studio C, which features acoustic design by George Newburn of Studio 440...Michael Dorf, owner of New York's avant-hip club The Knitting Factory, recently bought the Shimmy Disc label and associated studio, Noise New York...Nashville's Starstruck Studios added two Pro Tools 24 systems...Drummer and producer Jonathan Moffett installed a 32-channel Soundcraft Ghost in his studio in Irvine, CA...Longtime Little Richard bassist King Charles Glenn moved his studio, King C's Music, to a new location in Covina, CA. The studio offers 24 tracks of ADAT, extensive sound and sample libraries, and an array of digital processing and discrete vocal microphones. ■

—FROM PAGE 20, I KNOW EVERYTHING

keeps a list, and it checks it twice. It seems to know if I've been naughty or nice. I do kind of wish it would check that list three or four times, though—it makes an occasional mistake and crushes my head into the windshield.

You see, it has memories for several people—each triggers its own seat position, radio stations, EQ and volume, environment control and mirror positions when the car is approached. One of these people is very, very little. Every now and then the car mistakes me for her, and as soon as I sit down (the seat automatically moves as far back as possible when the door is opened), the computer happily moves the seat up and forward farther than one could imagine would ever be possible, thereby crushing my face into the top of the windshield until I look like a Jim Carrey caricature. Though my friends find this endlessly entertaining, I find it a bit more crushing—to my face *and* my ego. Remember, I used to be in control of my technology. But that was then, and this is now.

Technology is becoming virtual to us: It's not directly accessible, and it is growing so much faster than we are that it will never again be a tangible commodity.

I can't take the car apart. The '98 service manuals are not printed yet, so the dealer can't take the car apart either. I wanted to remove the sun visors because I am 6 foot 2, and they block my view. I do this to every car I buy. But *this* car has no screws. It took three days and five faxes from the manufacturer to figure it out—and then *that* turned out to be wrong!

When I finally did get the damned things off (it took a convoluted sequence of trick turns and pulls, much like a bank safe—no, more like the cube that opens the dimensional door in *Hellraiser*)—I felt a real sense of accomplishment. I was impressed with myself for taking a couple of sun visors off a car! Pathetic, huh? I used to tear new engines down just to study how their variable timing cams were actuated. But that was then, and this is now. We are no longer individuals in direct control of the technology we use. Technology has grown to a new level, but we have not. Organic life is falling behind.

Yesterday, I got a Motorola StarTac 8600. I told myself that I would get one last analog cellular before I give in to the inevitable pull of digital cellular (if you are really into cellular technology, you can figure out why a guy with several cell phones might want another analog). It has silly features like a built-in digital recorder and digital answering machine. It has caller ID and digital messaging. It uses Lithium Ion battery technology and only weighs 3.5 ounces. I don't know how it works, and I never will. There isn't a screw on the damned thing, at least not one I can see.

I got it because it was small enough to hide when I ride so I don't look like a tragically rich misguided lawyer-geek trying to hit the 200-mile mark on his three-year-old Harley. Also, it vibrates—there is no phone on earth you can hear once you get those pesky mufflers off a Harley. But small gear needs small technology, and that technology has now become too small to see. To us organics, it is gone. It has left our world for another stronger, more powerful micro-universe that we can only dream of.

Welcome to the embryonic stages of nanotechnology. No longer is there anything to see, to touch, to stick a probe on. No more parts numbers on chips, no more visible traces on circuit boards, no more recognizable components. Curiosity and logical extrapolation no longer buy you an education into the current state of the art in physical technology.

But this insidious takeover goes even deeper than that. The local air-time provider offers "Talkdial," a speech recognition dialing service. I use it. They also offer a comprehensive and convoluted voice-mail-messaging system in addition to the one in my phone. Neither this system nor the "Talkdial" are actually in my phone, but great effort has been made to make that fact irrelevant, if not invisible. There is a seamless transition between the phone's nanocomputer's features and the provider's mainframe computer features.

So I can't even tell which computer I am using at any given time. My little tech-toy is tied into a really, really big

tech toy so that I can carry the power of a building-size system in my shirt pocket and not even mess with the fall of the cloth.

Do you see my point? Once linked, technology will never unlink. Now anything can happen. The power of a product is no longer limited to how much stuff can be crammed into the product's shell. My little phone is constantly negotiating with the big home system to parse tasks. It doesn't really matter if I can get it open and identify the CPU or the transmitter hybrid. Ninety percent of what the phone is doing it isn't really doing itself; the provider is doing it for me *and making it look like the phone is.*

Now don't get me wrong. As wowed as I obviously am by this giant, silent step of technology, I still can't actually *talk* to anybody with it—it still drops out at the most crucial moments of a conversation. Maybe this is done on purpose to spare us from a fatal dose of future shock. Maybe next year they will turn off the "drop-every thirty-second" feature, along with the "jitter-so-they-can't-find-out-where-they actually-are" feature of American GPS.

Is all this a bit too fringe for you?

I got the new Sony 35-inch XBR. I looked in the cooling slots to see what interesting stuff was crammed in there that might be worth examining. It's empty. There are a few minuscule black dots on a little tiny circuit board hiding in a corner, but nothing worth looking at. All convergence and alignment is done digitally through the remote. Aced again. Nothing to touch and learn from. Nothing I know applies.

I guess we have to face it. We are no longer masters of our technology. Users? Yes. Masters? Hardly. Technology is becoming virtual to us: It's not directly accessible, and it is growing so much faster than we the people are that it will never again be a tangible commodity. Wow.

I guess the time has come for a new leap of faith. From here on out, I guess we should pick our gear based solely on what it does, not how it does it. If it does what we want, sounds the way we want and doesn't break, we should not concern ourselves with how it does it—just make sure the price is right for what it does for you.

Just think, no more lead weights glued to the inside of the cases of cheap reverbs to make them feel more valuable. ■

SSC is feeling very organic. Maybe he won't even get his telomeres extended.

—FROM PAGE 44, AUDIO TRANSMISSION

MUSICAM: Two attributes are very important to our users: coding compatibility and data rate flexibility. Because proprietary coding schemes have proved to have very limited market acceptance, all of our codecs are designed using international standards from CCITT and ISO MPEG, which ensures compatibility with other manufacturers using the same coding.

The ISO MPEG Layer II and Layer III coding we use in our stereo codecs is designed to transmit stereo audio using data rates from 128 kbps to 384 kbps. This gives users the flexibility to choose the most cost-effective data transmission rate for their application. While a domestic ISDN call may cost a few cents a minute, an international call on two or more ISDN B channels could cost more than $5 per minute. If the application is auditioning a recording, 128 kbps may be sufficient quality. But for sending contribution-grade audio, only 384 kbps will do.

Telos: Compatibility, available network costs and ease-of-use. Zephyr was one of the first codecs on the market to focus on the ease-of-use "creature features," while combining MPEG Layer III and Layer II in a single box to talk to other codecs around the world. ISDN is still the most affordable digital network that is available worldwide.

Where do you see professional distance audio transmission evolving in the future, in terms of both technological advances and markets?

APT: Significant progress will be made with the availability of ATM networks and the widespread use of current technology to South America, Africa and Asia. One of the main hurdles at present is the interoperability of telecommunications networks between countries. This is where the large growth in the industry will take place over the next ten years.

EDnet: Studios with the ability to make external audio connections will become the norm; a codec will be as standard a piece of equipment for a studio as the DAT machine is now. Codecs with more than one algorithm will become common. Video connections will become more affordable and exhibit higher quality. The Internet—or more

appropriately, extranets (Internet-like, private, higher-speed networks)—will play a greater role in interconnecting collaborators across the country in all forms of media. As new communications technologies come along, like cable modems or xDSL, EDnet will build them into our service offerings as soon as they become practical and consistently reliable.

Lucent: Professional audio will become a much larger universe with the expansion of industry alliances that use systems for high-speed, real-time connections. This will enable the virtual studio to become a "real" business model. Virtual studio networks, for production and post-production, will continue to emerge, offering real-time flexibilities and hourly rates, just as "real" studios do today.

Markets for public and private transmission systems will continue to grow, offering the assurance of current telephone networks and the quality of professional playback systems. The Web will become a more viable distribution mechanism for music, using IP technologies for variable bandwidth listening. The sound-for-picture business will increase on the Internet as mixes are sent via high-speed lines to remote locations.

MUSICAM: Last year, we saw major new deployments in Latin America and Pacific Rim countries. We expect growth to continue in Eastern Europe and Asia as a result of ISDN and digital telephone services becoming more available. Internationally, we believe that in the next decade it will be possible for anyone to send professional-quality audio across a large part of the globe.

We have also received some requests to send digital audio without compression. Since uncompressed audio requires 1.5 Mb/s, the availability and cost of data transmission will be a major factor in the growth of this technology.

Telos: In the near future, the Web will become a viable vehicle for live, real-time, high-quality audio transfer. With our AudioActive line, Telos is already offering the only professional, high-quality MP3 encoding solution to limited bandwidth applications over the Internet. AudioActive hardware encoders are available, as well as a soon-to-be-released software encoder. ■

Mix *Media & Mastering editor Philip De Lancie is a mastering engineer, freelance writer and multimedia designer in Berkeley, Calif. He can be reached at pdel@compuserve.com.*

—FROM PAGE 72, JEREMY KOCH

You are not a mixer nor a sound editor; you're a businessman. Do you think that it would have been an advantage or a disadvantage as president of Sound One to have had some hands-on experience?

I would certainly have had less sleepless nights! I agonized quite a bit in the early stages, feeling that it was somewhat of a handicap. The man who brought me here, Elisha Birnbaum, was my mentor and hand-holder on the equipment end. I think that after all the agony and insecurity, it was an asset to *not* be a maven at the engineering level, and to admit it to myself. It allowed for a lot more dialog in a facility like this.

I did not have an ego to impose; all I wanted people to do was to prove it to me. I was constantly pitting one theory or concept against another. I fell in love with none of them. Even though it was time-consuming, I think we avoided a lot of errors. I was once trying to acquire a company. When I asked the [CEO] what I was paying for, he told me I was paying for him. He was an engi-

SOUND ONE PLANT AND EQUIPMENT

SEVENTH AND EIGHTH FLOORS: THE DIGITAL DUPLEX

The nerve center of this Duplex is the Equipment Room (ER-8), an ultramodern, clean room equipped with the latest in digital technology from Sony, Akai, Tascam, Sonic Solutions, Digidesign and Dolby. Connected by a custom-designed routing center, ER-8 serves four re-recording stages and one digital editing suite. The four stages are identically equipped: Neve VR consoles with Flying Faders automation and a computerized film/video monitoring matrix designed by Sound One. The suite and stages are linked to ER-8's Sonic Solutions file servers via the largest FDDI digital audio network in the world. Each studio has the capability of using multiple digital audio workstations during the course of the mix. Akai DD-8 digital recorders can be used throughout the facility, linked by Ethernet. Each studio features its own Akai Digital Controller. In addition, each studio is linked through the routing center to a separate analog machine room.

The Duplex also houses the facility's audio transfer suites, film-to-tape transfer suite, optical transfer laboratory, sound effects library, accounting, executive/administrative offices and 20 individually tailored editing suites. All 85 editing suites are maintained by the editorial equipment rental and maintenance department. Many of the suites can be instantly reconfigured into single- or multiple-room environments.

SECOND AND THIRD FLOORS: FILM CENTER DUPLEX

Sound One's Film Center Duplex features two additional re-recording stages centered around Neve 51/V Series custom consoles with Flying Faders automation. ADR is performed in two studios, both equipped for film/video projection. ADR, as well as other audio functions at remote locations, can be linked to studios via facilitywide ISDN connections. Two Foley studios and 28 editing suites are arranged in proximity to these studios.

SIXTH FLOOR: EDITORIAL COMPLEX

Sound One's Library and short-term storage facility feature bar code inventory management. Editorial, stock and office materials can be purchased from the supplies department, which also assists clients with mail and fax services. This complex also houses 12 custom editing suites.

PENTHOUSE: EDITORIAL COMPLEX

The 3,000-square-foot, trellised Penthouse terrace overlooks Broadway, Times Square, Hudson River, East River, Queens and New Jersey. Tables and benches provide a sunny spot for lunch, casual gatherings and relaxation. Some 20 additional, custom-tailored editing suites can be configured as multisuite editing departments.

THE VAULT

Secure, long-term storage is warehoused in the subterranean Vault, which is situated adjacent to Sound One's carpentry studio. Much of the facility's custom, technical cabinetry and furnishings are designed and manufactured by its facilities management team. ■

neer and knew the business from the engineering end. I responded by saying that most of the people fail because they fall in love with their own ideas. People at Sound One are free to tell me what they think, and tell me when I'm wrong. This is a company that debates. Dialog is an important asset.

How do you keep yourself up to date with technical requirements? Do you share ideas with owners of other New York facilities?

Yes, I know Howie Schwartz and Bill Marino [co-owner, with Ken Hahn, of Sync Sound]. We service different markets. Howie does not service [the film] market; Sync Sound really doesn't service our market. The advantage of being in New York is that I'm also on very good terms with [post houses] in Hollywood. We don't threaten each other, and there's a lot of give and take. My attitude toward life is that if you keep an open mind, it's healthier. So, if the people at Fox, for example, want to come here and see what we're doing, we're open.

Is there room for growth in the New York film-post community?

I think we're okay right now. Having this level of market share is enough. Every once in a while, we get a client that we can't accommodate. Neil Jordan wanted to do his recent film here, but we were too busy, so he took it back to England. I would like that not to happen, but, on the other hand, if we keep growing, we can all too easily implode.

I'd like to add that this is predominantly a people-oriented company. We went way out front with the digital revolution—one of the few times that Sound One actually went first. I'm the last person to want to go first, but I always see that whenever we talk about technology, it's really about *people.*

Years ago, Arturo Rubenstein was being interviewed by Mike Wallace, who asked the Maestro: "How do you feel about the students you're getting today?" And Rubenstein responded: "Students today play better than I've ever played in my life. They play better than I have ever *dreamed* of playing." And Mike Wallace asked him how did it make him feel? Rubenstein responded: "I tell them all, 'So now make *music.*'" We cannot let technology take precedence over the making of music. At the end of the day, it's the people here that make the music. But technology helps! ■

Mel Lambert currently heads up Media&Marketing, a consulting service for pro audio firms and facilities.

STUDIO SHOWCASE

Lobo Recording

2103 Deer Park Ave.
Deer Park, NY 11729
(516) 242-0266 or (516) 243-2983
Fax (516) 243-3964
e-mail: music@loborecording.com
http://www.loborecording.com

Located 35 minutes east of NYC, Lobo Recording is the place to achieve your creative goals. Recent acquisitions include an SSL 9096J, Neve VR 72, Studer D827 and Yamaha C7 Grand Piano. Other Equipment includes Amek Angela IIs, Studer A827s, A80s, ADAT XTs 64 tracks and an extensive list of microphones and outboard gear. Please call for more info.

THE SOUND LAB

The Sound Lab

1006 E. Guadalupe
Tempe, AZ 85283
(602) 345-0906; Fax (602) 345-6966

Located ten minutes from the Phoenix airport, Arizona's finest audio facility features a NEVE VRP 48-channel console with Flying Faders Automation, Otari 32-track digital DTR900, Analog, and 32 tracks of ADAT XT. Our Yamaha concert grand, vintage Neumann and AKG mics, Gretsch drum kit, along with the finest in outboard gear provide a selection without compromise. Enjoy experienced professionals in a relaxed atmosphere with Arizona's world-class amenities nearby! Package rates available on hotel, car and studio time. Highest quality at the best price.

Stepbridge Studios

528 Jose Street
Santa Fe, NM 87501
(505) 988-7051; Fax (505) 988-7052
email: stepbridge@sprynet.com
http://home.sprynet.com/sprynet/stepbridge

Our SSL is mated with a Neve "sidecar." The tracking room is spacious, the mic list extensive, and the racks are loaded with the finest digital, class A and tube processing. Recent projects include Robbie Robertson, Rita Coolidge, Herbie Mann, Dwight Yoakam, Gene Hackman and James Woods. A five-minute walk from the historic plaza, Stepbridge offers charm, privacy, on-site accommodations and an experienced, fully professional staff—the perfect combination for your next project.

QUAD Recording Studios

Quad Recording Studios

723 7th Ave.
New York, NY 10019
(212) 730-1035; Fax (212) 730-1083
http://www.quadstudios.com

Located in the heart of midtown Manhattan, Quad is the only studio in New York with two SSL 9000J Series tracking and mixing rooms. Quad is a six-floor facility with four world-class SSL rooms. Clients are welcomed by a friendly staff of professionals and enjoy our studio because of its creative atmosphere. Each studio is located on a private floor with separate lounges, bathrooms, kitchens and on some floors, bedrooms. Recent Quad clients include Mariah Carey, Robyn, Michael Bolton, Sugar Ray, Yoko Ono, Metallica and David Kahne.

UMC Ultimate music corporation

Ultimate music corporation

40 Lopez Avenue
Cambridge, MA 02141
(617) 576-2855; Fax (617) 576-8094
e-Mail: info@U-music.com
http://www.U-music.com

A two-room digital music production facility located near Boston, featuring Otari and Tactile Technology consoles. We offer up to 96 tracks of tape- and disk-based multitrack recorders including Sony 3324, RADAR, ADAT, DA-88 and Pro Tools. All rooms are fitted with world-class outboard gear from Focusrite, Avalon, Manley, API and an extensive collection of new and vintage keyboards. All this set in a relaxed and elegant environment. Call for our brochure or additional information.

M WORKS

M Works

432 Columbia St., Ste. B-14A
Cambridge, MA 02141
(617) 577-0089
e-Mail: studio@m-works.com
http://www.m-works.com

M Works offers state-of-the-art mastering employing digital, analog or hybrid signal paths. Gear by Neve, Sontec, Neumann, Weiss, Jünger and Sonic. More than 2,000 credits span the world of music: e.g. Rahsaan Roland Kirk, David Bowie, Seattle Symphony, Jen Trynin, Windham Hill, Aimee Mann, Reeves Gabrels. We offer NoNoise and location recording too. Call for schedule and rates.

Your superior ingredients plus our unsurpassed know-how give our masters refreshing and long-lasting flavors.

▪ STUDIO SHOWCASE ▪

San Rafael Studios

53 Jordan
San Rafael, CA 94901
(415) 458-8080; Fax (415) 458-8081

San Rafael Studios is a full-service production center for film, video and audio recording, production rehearsals and graphic arts. Just 25 miles north of SF, our facilities include two soundstages/40'x50' x24' (acoustically tunable) with a 22'x23'x12' control room and 40'x60' shooting stage, 15'x25' still studio. Production offices, kitchens, wardrobe, showers and on-site apt. 1200amp30/power. Recent clients include: Metallica, Joe Satriani, Greg Allman, Kenny Wayne Sheppard and Skywalker Sound. Call for more info.

Showplace Studios

347 South Salem St.
Dover, NJ 07801
(973) 328-4400; Fax (973) 328-4933
http://www.showplacestudios.com

48-track analog recording, featuring Studer A800. One of the largest collections of awesome vintage gear anywhere. Mixdown Studer A820 ½ inch 2-track and automated Amek console featuring all Neve modules. Top-quality sound and staff at reasonable rates. Large live room, stone area and iso booths. Great vibe, gear and experience brings your music to its full potential. Showplace Studios—where the past meets the future. Neve, Pultec, RCA, Teletronix, UREI, Neumann, Helios, EMT, Lexicon, Tubetech, Langevin, etc.

Colossal Mastering

1644 North Honore #101
Chicago, IL 60622
(773) 292-1692; Fax (773) 292-1698
(800) 730-2468
e-mail: cmastering@aol.com

World-class mastering coming to Chicago. Colossal Mastering's new state-of-the-art facility is home to the finest equipment and services in the region. From custom discrete analog to precise 24-bit digital, names like Sonic Solutions, Manley, Avalon and Weiss are used to realize the full potential of your project. Clients include Styx, The Smithereens, CSO principal oboist Alex Klein, Sonia Dada, Ella Jenkins, Enuff-Z'Nuff and Brother 6.

Las Vegas Mastering

1006 E Sahara Ave.
Las Vegas, NV 89104
(888) MASTERS
e-mail: tomparham@earthlink.net
http://www.tomparham.com

California-based Tom Parham Audio has opened a new location in Las Vegas Nevada offering state-of-the-art CD mastering and digital bin cassette duplication. The new mastering rooms include Sonic Solutions w/NoNoise, Apogee AD 8000 w/UV22 24-bit converters, Manley variable MU compressor and Electo Optical levelling amplifier, Focusrite Blue 315 mastering EQ, Drawmer 1961 Tube EQ, TC Finalizer, Z-Sys and complete Pro Tools 24 system for 32-track recording.

Sonorous Mastering Inc.

2519 W Geneva Drive
Tempe, AZ 85282
(602) 453-9648; Fax (602) 453-9641

Sonorous Mastering is a cutting-edge facility in Tempe, Arizona, centrally located for easy access to downtown Phoenix yet only minutes away from Tempe's Mill Avenue and ASU campus. With custom analog and digital electronics by Manley, Avalon, Sony, Symetrix, TC Electronic and Sonic Solutions and over 300 days per year of blue skies, our clientele can enjoy a pleasurable combination of lush, warm sounds and inviting green fairways. Please call for rates and availability.

Digital Insight Las Vegas

2810 S. Maryland Pkwy., Ste. C
Las Vegas, NV 89109
(702) 792-3302; Fax (702) 792-8582
e-mail: oktober@accessnv.com
http://www.stylewise.com/digital

"A world-class facility in Las Vegas."

Just five minutes from the beautiful Las Vegas Strip, we offer complete 48-track analog and digital recording. Our 3,400-sq.-ft. facility, designed by Vincent Van Haaff, features total recall and complete automation, Neve pre's, Studer A827 and A820, ADAT XTs, TAD monitors and Neumann mics. Complete mastering on Sonic Solutions and 24-track B-Room for pre-production and overdubs. Visit our Web page for a virtual tour.

MICROPHONES

AKG

C414B/ULS

A reputation for flawless performance & uncommon flexibility in the most demanding studio & concert sound applications.

Dual 1" Gold-sputtered diaphrams.
Flat on-axis response.
126dB dynamic range.
Switchable 10dB and 20dB pad.
20Hz–20kHz.

EAD

E-300
Studio Condenser Microphone

A multi-patterned side address mic that combines vintage capsule design with advanced headamp electronics, the E-300 has an unusually wide frequency response of 10Hz to 20kHz & an exceptional dynamic range of 137 dB. It also features extremely low self noise of 1dB. Ideal for even the most critical studio applications

Shown with optional ZM-1 Shockmount

Unique powering of all Equitek Series microphones is accomplished with a pair of rechargeable nicad 9-volt batteries in combination with 48V phantom power. This overcomes inherent current limiting associated with most phantom power supplies & can supply 10x the current.

audio-technica.

AT4050/CM5
Cardioid Capacitor Microphone

The AT4050 multi-pattern condenser expands upon the AT4033 to set the standard for studio performance mics.

FEATURES–
2 capacitor elements
Cardioid, Omnidirectional, & Figure 8 polar pattern settings
Vapor-deposits of pure gold on specially contoured large diaphragms are aged through 5 steps to ensure optimum characteristics over years of use.
Transformerless circuitry results in exceptional transient response and clean output even under extremely high SPL conditions

SENNHEISER

MD 421

For over 20 years, the MD 421 has been one of Sennheiser's most popular dynamic mics. The large diaphragm, dynamic element handles high sound pressure levels, making it natural for recording guitars and drums. The MD 421's full-bodied cardioid pattern, and 5-position bass control make it an excellent choice for most instruments, as well as group vocals, or radio broadcast announcers. One listen and you'll know why it's a classic.

MIXING BOARDS

MACKIE.

Get on the 8-Bus!

Since its introduction, Mackie Designs' 8•Bus Series consoles have proven that excellent sonic quality, practical features and extreme durability can be affordable. All 3 versions offer extensive monitoring, 4-band EQ, accurate, logarithmic taper faders, and expansive headroom. The 24x8 and 32x8 can be expanded using Mackie's 24•E Expander console which consists of 24 input channels and tape returns and may be daisy chained to provide 128 or more total input channels.

Available in 16x8, 24x8, & 32x8 versions.

FEATURES-
- Each channel includes Mackie's well-known Mic preamp and a -10/+4 switchable tape return
- 8-assignable submasters and a L/R mix master
- 4-band, true parametric EQ
- Extensive routing capabilities
- Optional Meter Bridges available
- Optional 24•E Expander console available
- Rugged all-metal chassis
- In-line monitoring effectively doubles input channels

TASCAM M-1600
16 & 24 Channel 8-bus Consoles

Great for modular Digital Multitrack setups and hard disk recording, the M-1600 is part of Tascam's next generation series of recording consoles. It features multiple options for inputs and outputs and uses the same, easy to install D-sub connectors as Tascam's more expensive consoles, all in a compact design.

FEATURES–
- XLR Mic inputs w/phantom power on 8 channels.
- Signal present/overload indicators on each channel.
- Balanced & Unbalanced tape returns & Balanced Group/Direct outputs using D-sub connectors.
- TRS Balanced Line Inputs on all channels.
- 3-band EQ with sweepable mids.
- 5 Aux sends (1 stereo)
- 4 assignable aux returns.
- Perfect for use with DA-88 and ADAT setups.

MINIDISC MULTITRACKS

TASCAM 564 Digital Portastudio

The Tascam 564 Digital Portastudio combines the flexibility and superior sound quality of digital recording with the simplicity and versatility of a portable multitrack. Using MiniDisc technology, the 564 has many powerful recording and editing features never before found in a portable 4-track machine

FEATURES–
- Self-contained digital recorder/mixer
- Uses low-cost, removable MiniDiscs.
- 2 AUX sends / 2 Stereo returns
- 4 XLR mic inputs.
- Channel inserts on inputs 1 & 2.
- 5 takes per track, 20 patterns, 20 indexes per song
- Random access and instant locate.
- Non-destructive editing features with undo capability include: bounce forward, cut, copy, move
- Full-range EQ with mid-range sweep.
- S/PDIF digital output for archiving.
- MIDI clock and MTC.

JUST IN!

SONY MDM-X4 MD Multi-Track Recorder

MD recorders are here! Offering up to 37 minutes of high-quality 4-track digital recording, the MDM-X4 is truly the next generation of personal multi-tracks. With a built-in mixer, exclusive Track Edit system, and a Jog/Shuttle wheel for sophisticated editing with ease, the MDM-X4 will encourage you to flex your creativity.

FEATURES–
- Records on high quality, removable MD data discs
- 3.5-gen. ATRAC LSI for wide dynamic range.
- 10 Input / 4Bus mixer
- 2 AUX sends, 3-band EQ. • 11-point locator.
- Random access memory for quick playback and record from anywhere on the disk
- Editing features include Undo, Redo, & Section Song editing for flying material between different tracks.

STUDIO MONITORS

ALESIS

Monitor One

The award winning Monitor One provides the last critical link in the recording studio's signal chain, giving you an accurate reproduction of what is being recorded.

FEATURES-
- Excellent image and transient reproduction, powerful bass, and smooth, extended high frequency detail.
- Exclusive SuperPort speaker venting technology
- Ferrofluid cooled 1" silk-dome driver

TANNOY

PBM 6.5II

The PBM 6.5 II is the industry standard for studio reference monitors. They provide true dynamic capability and real world accuracy.

FEATURES–
- 6.5" low frequency driver and 3/4" tweeter
- Fully radiused and ported cabinet design reduces resonance and diffraction while providing deep linear extended bass.

JBL

4206 & 4208

The 4206 & 4208 studio reference monitors are 6" and 8" respectively. Both offer exceptional sonic performance, setting the standard for today's multi-purpose studio environments.
- Multi-Radial baffle ABS baffle virtually eliminates baffle distortion.
- Superb imaging & reduced phase distortion.
- Pure titanium diaphragm high frequency transducer provides smooth, extended response
- ***Magnetically shielded for use near video monitors.***

SPIRIT

Absolute Zero

Absolute Zero monitors maintain a wide frequency response at high and low listening levels, both on and off-axis for consistent results everytime.

FEATURES-
- High definition linear phase design
- Wide, controlled dispersion
- CAD optimized, low loss crossover
- Custom designed drivers
- Long throw 178mm LF driver
- 25mm soft dome HF unit on proprietary waveguide

PORTABLE DAT RECORDERS

TASCAM DA-P1

- Rotary 2 head design, 2 direct drive motors.
- XLR mic/ line inputs (w/phantom power)
- Analog and S/PDIF (RCA) digital I/O.
- 32/44.1/48kHz sample rates & SCMS-free recording.
- Built in MIC limiter and 20dB pad.
- TRS jack w/ level control for monitoring
- Includes shoulder belt, AC adapter, & battery

HHB PDR1000/PDR1000TC

The PORTADAT has fast become an industry standard location DAT machine. Popular for film and video production use, as well as ENG/EFP, the PDR1000 features a large backlit display, 4 motor transport and AES/EBU and SPDIF digital ins and outs. The PDR1000TC adds the ability to record, generate and reference to timecode as well as jam sync to convert absolute time to timecode.

FEATURES-
- 4 head Direct Drive transport
- XLR mic & line analog ins, 2 RCA line outs. Digital I/O includes S/PDIF (RCA) and AES/EBU (XLR).
- L/R channel mic input attenuation selector(0dB/-30dB)
- 48V phantom power, limiter & internal speaker.
- Illuminated LCD display shows clock and counter, peak level metering, margin display, battery status, ID number, tape source status and machine status.
- Nickel Metal Hydride battery powers the PDR1000 for 2 hours, AC Adapter/charger included

PDR1000TC Additional Features-
- All standard SMPTE/EBU time codes are supported, including 24, 25, 29.97 29.97DF, & 30 fps.
- External sync to video, field sync and word sync.

NEW Options-
- **MS1000 Master Sync module** ensures drift will be no more than 1 frame every 10 hours.
- **HM1040 Headphone Matrix** provides a rotary switch for selection of Stereo, Mono Left, Mono Sum, & M/S (mid-side) Stereo modes.

SONY TCD-D10 PROII

A reliable, high-performance DAT recorder, the portable TCD-D10 PROII is designed with rugged professional use in mind. It has many enhanced features including absolute time recording, allowing immediate use of the tapes as source material for Sony's PCM-7000 series DAT editing system

FOSTEX PD-4 V.2

The second-generation portable, professional TC DAT recorder from Fostex. Version 2 software includes many features and functions for improved performance in the field.

FEATURES-
- 4-head design • Punch-in/out
- Pre or post striping of SMPTE/EBU timecode
- 3 in X 2 output mixer with 3-position pan functions
- Selectable 48V phantom powering and variable low-cut filters

EFFECTS PROCESSING

lexicon PCM-80 & PCM-90 Digital Signal Processors

A great combination for any studio owner with an ear for the best. The **PCM-80** delivers high quality multi-effects based on the legendary PCM 70, maintaining Lexicon's high standards for sonic clarity and extraordinary processing power. The **PCM 90** is a digital reverb with its roots stemming from the studio standard 480L and 300L effects systems. Reverbs from telephone booths to the grand canyon, the PCM 90 is incredibly real-is tic, an excellent addition to any rack mount arsenal.

Buy a PCM-80 from B&H before December 25th, 1997 and receive a FREE Pitch FX Card & $100 - a $350 Value!

Buy a PCM-90 from B&H before December 25th, 1997 and receive a FREE Dual Reverb Card & $250 - a $500 Value!

lexicon MPX-1 Multi-Effects Processor

Lexicon's latest addition to their Digital effects family, the MPX-1 features top-quality effects in an easy to use, 1 rack space unit. With 56 Pitch, Chorus, EQ, Modulation, Delay and world-class reverb effects accessible from the front panel, as well as TRS and XLR balanced I/O and complete MIDI implementation, the MPX-1 creates a new standard for cost and quality in a multi-effects device.

t.c.electronic Wizard M2000 Studio Effects Processor

The M2000 features a "Dual Engine" architecture that permits multiple effects and 6 different routing modes making it a great choice for high-end studio effects processing.

FEATURES-
- 250 factory programs including reverb, pitch delay, chorus, flange, phase, EQ, de-essing, compression, limiting, expansion, gating and stereo enhancement
- 20-bit A/D conversion, AES/EBU and S/PDIF digital I/O.
- "Wizard" help menus, 16-bit dithering tools.
- Tap and MIDI tempo modes.
- Simple page parameter editing, 1 rack space.

SONY DPS-V77 2 Ch. Master Effects Processor

Sony's latest effects processor, the DPS-V77 yields excellent sonic quality combined with realtime control, a digital I/O and many more features that will put a smile on the face of any discerning studio engineer.

FEATURES-
- 198 preset & 198 user-definable programs.
- Control up to 6 parameters in realtime via MIDI information and an optional foot pedal
- Use the AES/EBU & SPDIF digital I/O to link multiple V 77s together & when working with digital mixers
- 10-key pad input
- Shuttle-ring equipped rotary encoder allows for quick patch changing.
- A noise gate circuit is provided ahead of the input for guitar players and other instrumentalists who want top quality effects without sacrificing tone

Roland SRV-330 Dimensional Space Reverb

The SRV-330 provides exceptional sound quality, using proprietary Roland Sound Space technology to achieve three-dimensional spatial effects with conventional two-channel playback

FEATURES-
- Discrete stereo reverb algorithms for independent processing per channel
- 30-bit internal signal processing for a clear and accurate sound
- 300 preset and 100 user patches
- MIDI and realtime control via remote control and expression jacks

PRO HEADPHONES

AKG K240M

The first headphone of choice in the recording industry. A highly accurate dynamic transducer and an acoustically tuned venting structure produce a naturally open sound.
- Integrated semi-open air design.
- Circumaural pads for long sessions.
- Steel cable, self-adjusting headband.
- 15Hz–20kHz, 60Ω

SONY MDR 7506

The Sony **7506's** have been proven in the most trying studio situations. Their rugged, closed-ear design makes them great for keyboard players and home studio owners
- Folding construction
- Frequency Response 10Hz to 20k Hz
- 1/4" & 1/8" Gold connectors
- Soft carrying case
- Plug directly into keyboards

beyerdynamic DT 770 Pro

These comfortable closed headphones are designed for professionals who require full bass response to compliment accurate high and mid-range reproduction.
- Wide frequency response
- Durable lightweight construction
- Equalized to meet diffused field requirements
- Padded headband ensures long term comfort

SENNHEISER HD 265/HD580

The **HD-265** is a closed dynamic stereo HiFi/professional headphone offering high level background noise attenuation for domestic listening and professional monitoring applications. The **HD 580** is a top class open dynamic stereo HiFi/professional headphone that can be connected directly to DAT, DCC, CD and other pro players. The advanced design of the diaphragm avoids resonant frequencies making it an ideal choice for the professional recording engineer.

KEYBOARDS & SOUND MODULES

Roland® A-90EX
Master Keyboard Controller

The A-90EX is an 88-note, weighted master controller with one of the best keyboard actions currently on the market. It offers incredibly realistic piano sounds, powerful controller capabilities and 'virtual' programmable buttons which can be configured to operate your software and other devices. The A-90EX combines the majestic sound of a concert grand, the expressive action of a fine acoustic keyboard and the comprehensive MIDI functions of a master controller—all in a portable stage unit.

FEATURES–
- Master Volume Slider and Global Transpose features
- Proprietary 88-note hammer-action, velocity sensitive keyboard with aftertouch
- 2 types of stereo-sampled grand pianos, various acoustic and electric pianos (including a great classic Rhodes)
- Stores up to 64 Performances

Roland® JV-2080
64-Voice Synthesizer Module

Roland resets the standard with the incredibly expandable JV-2080 64-Voice Synthesizer Module. This amazingly powerful package offers unprecedented expandability, digital signal processing, and remarkable operational ease, all housed in a 2-unit rack-mount design.

FEATURES–
- 64-Voice / 16-part multitimbral capability
- 8 slots for SR-JV80 Series wave expansion boards.
- 3 independent effects sets plus independent reverb/delay and chorus.
- 6 outputs, Main Stereo and 4 assignable.
- **NEW** patch finder and Phrase Preview functions for easy access to all patches.
- Large backlit graphic display
- Compatible with JV-1080, XP-50, & XP-80.

KURZWEIL
K2500 Series Music Workstation

Building on the same features that made the 2000 series popular, the 2500 utilizes the acclaimed V.A.S.T. technology for top-quality professional sound. Available in 76-key (K2500), 88 weighted key (K2500X) and rackmount (K2500R) configurations, the K2500 combines ROM based samples chosen from the best of Kurzweil's collection, on-board effects, and full sampling capabilities on some models (K2500S, K2500RS & K2500XS).

FEATURES–
- True 48-voice polyphony
- Fluorescent 64 x 240 backlit display
- Up to 128MB sample memory
- Operating system stored in flash ROM (for software updates via floppy disk and SCSI)
- Full MIDI controller capabilities
- 32-track sequencer • Dual SCSI ports
- Advanced file management system
- Sampling option available
- Optional **DMTi** Digital Multitrack interface for data format and sample rate conversion with ADATs/DA-88s

MIDI SOFTWARE

Mark of the Unicorn
Digital Performer 2.1
Macintosh MIDI Sequencer w/ Integrated Digital Audio

Digital Performer contains all of the sequencing capabilities of Performer V.5 and adds Digital Audio to the picture. Apply effects such as Groove Quantize, shift, velocity scaling and more- *All IN REALTIME.*

FEATURES–
- MIDI Machine Control, Quicktime Video playback.
- Sample rate conversion
- Spectral effects, pitch correction
- Real-time editing and effects processing
- Full featured Notation section that rivals dedicated notation software programs.
- Playback using Quicktime Musical Instruments
- Virtual automated mixing
- Non-destructive MIDI output processing

SAMPLING

E-mu Systems, Inc.
e-6400 Emulator

The e-6400 offers the power of E-mu Systems' renowned Emulator Operating System (EOS) and superb audio quality in a package perfect for the budget-minded professional. The e-6400 comes with stereo sampling, 4MB of RAM and is fully upgradeable to E-mu's top of the line Emulator sampling synthesizers, the E4X, and E4XTurbo

FEATURES–
- 64 voice polyphony (expandable to 128)
- 4MB sound RAM
- 2 CD-ROM's included (400MB of sounds)
- 8 balanced analog outputs
- Onboard graphic waveform editing
- Load while play
- Stereo phase lock time compression.

T H E N E W M P C !

AKAI MPC 2000
MIDI Production Center

Whether your producing rap or hip-hop, sequencing a rack of MIDI modules, or performing live, the MPC2000 gives you powerful tools to make your music shine. It's the NEW MPC!

FEATURES–
- Large 248 x 60 LCD Graphic display
- 64-track, 100,000 note sequencer with linear drum machine style programming.
- 16-bit, 32-voice stereo sampler
- Standard SCSI interface
- Soft keys, Data/Digit wheels, cursor control and more.
- Keypad for directly entering sample points.
- Note variation slider gives you realtime control of any sound's tuning, attack, decay, or filter frequency.
- Floppy Disk Drive
- Powerful expansion options.

MIDI HARDWARE

Mark of the Unicorn
MIDI Time Piece™ AV
8x8 Mac/PC MIDI Interface

The MTP AV takes the world renowned MTP II and adds synchronization that you really need like video genlock ADAT sync, and word clock sync, even Digidesign superclock!

FEATURES–
- Same unit works on both Mac & PC platforms.
- 8x8 MIDI merge matrix, 128 MIDI channels.
- Fully programmable from the front panel.
- 128 scene, battery-backed memory
- Fast 1x mode for high-speed MIDI data transfer

Mark of the Unicorn
Digital Time Piece™
Interface

Think of it as the digital synchronization hub for your recording studio. The Digital Timepiece provides stable, centralized sync for most analog, digital audio, and video equipment. Lock together ADATs, DA-88's, ProTools, word clock, S/PDIF, video, SMPTE, and MMC computers and devices flawlessly. It ships with "Clockworks" software which gives you access to its many advanced features and remote control of some equipment settings such as record arm.

OPCODE
Studio 64X
Cross Platform Interface

The Studio 64X is part of Opcode's new Studio X Series. This 64 channel MIDI interface is compatible with both Macintosh and Windows and features SMPTE synchronization as well as OMS (Open Music System) compatibility for total integration with any OMS compatible application.

FEATURES–
- Cross-platform Mac and Windows compatibility
- 4 MIDI inputs and 6 MIDI outputs, 64 MIDI channels
- Stand alone programmable patchbay, any in to any out
- SMPTE timecode generation and synchronization
- Front panel patchbay SMPTE access and panic button

Ad Index & Advertiser

PAGE	PRODUCT INFO NUMBER	ADVERTISER
217	-	104th AES Convention
222	172	Aardvark
158	110	acoustic
54	034	Acoustic Sciences Corporation (ASC)
148	101	Acoustic Systems
84	054	Acoustical Solutions
198	145	Acoustics First
234	182	Advance Recording Products
17	009	Akai
191	137	AKG
IFC	001	Alesis
221	169	AlterMedia
55	035	Amek
202	150	American Sound & Video
36	019	AMS Neve
72	047	Anthony DeMaria Labs (ADL)
87	057	Aphex Systems
59	037	Apogee Electronics
44	027	Applied Research & Technology (ART)
192	138	Ashly
167	121	Audio Precision
228-231	179	B & H Photo-Video
31	017	BASF
30	016	Belden Wire & Cable
70	045	Benchmark Media Systems
91	059	Brauner
183	132	BST
50	030	Burlington A/V Recording Media (Maxell)
68	045	CAD
94	062	CAIG Laboratories
161	114	Cakewalk Music Software
198	144	Cal Switch
84	055	Canorus
221	170	Caruso Music
233	181	CMS Mastering
160	112	Conservatory of Recording Arts & Sciences
147	100	D & R USA
166	119	The DAT Store
6, 7	004	dbx Professional Products (586 Preamp)
22, 23	011	dbx Professional Products (DDP)
49	029	Digidesign
205	153	Digisonics
81	051	Digital Audio Labs
204	152	Disc Makers
2	002	Drawmer/Transamerica Audio Group
164	116	Dreamhire
25	012	Duracell USA
195	141	EAR Professional Audio/Video
185	129	Electro-Voice
63	044	Emagic
197	143	Ensoniq
213	160	Equi=Tech
93	061	Euphonix
215	162	Europadisk
41	020	Event Electronics
37	024	Eventide
149	103	Expression
166	120	Flatworks
159	111	Full Compass
194	140	Full Sail
178	126	Furman Sound
80	-	Future Disc Systems
92	060	Gefen Systems
64/65	-	Genelec
216	163	Gepco
182	131	Graham-Patten
182	130	Grandma's Music & Sound
225	177	Great River Electronics
165	118	Groove Tubes Audio
222	171	Guitar Center's Rhythm City
85	056	Hafler
211	158	Hannay Reels
67	041	Harrison/GLW
219	165	Hermes Music
73	048	HHB Communications
66	043	The Hollywood Edge
223	173	illbruck
164	117	Industrial Acoustics Company
96	064	Institute of Audio Research
BC	-	JBL Professional
38	021	Joemeek/PMI
236	185	JRF/NXT Generation
53	033	KRK Monitoring Systems
79	050	Kurzweil Music Systems
220	168	L&M Music
29	015	LA Audio/SCV London
160	113	Lawson Microphones
218	-	LDI98
26-27	013	Lexicon (MPX 1)
83	053	Lexicon (PCM81)
235	-	Los Angeles Recording Workshop
IBC	187	Mackie (SR24•4/32•4)
14-15	008	Mackie (D8•8)
90	058	Manley Laboratories
212	159	Markertek Video Supply
196	142	MediaFORM
64	042	Metric Halo Labs
179	127	Meyer Sound
209	147	Micro Technology Unlimited (MTU)
52	032	Microboards of America
82	052	Microtech Gefell
62	040	Millennia Media
157	109	Minnetonka Software
233	180	Musgrave Audio Design Labs
153	104	Musician's Friend
223	174	National Sound and Video
13	007	Neumann/USA
51	031	Neutrik
210	157	Northeastern Digital
39	022	Otari (Elite)
18-19	-	Panasonic (DA7 Mixer)
45	028	Peavey (CS 800S)
177	125	Peavey (Unity RQ Series)
201	148	Pelonis Sound & Acoustics
42	025	Pilchner Schoustal
224	175	QCA
179	123	QSC Audio Products
187	136	QSC Audio Products
148	102	Quadim Mastering
9	005	Quantegy/Ampex
175	124	RADIAL
202	149	The Recording Workshop
224	176	Rich Music
184	134	Rocket Lab
71	046	Roland
58	036	RSP Technologies
199	146	Sabine
203	-	Sam Ash Professional
77	049	SEK'D America
209	156	Sennheiser
237	186	ShowBiz Expo
I	-	Solid State Logic (SSL)
193	139	Sonic Foundry
151	105	Sonic Solutions
21	010	Soundscape Digital
146	099	Speir Music
61	039	Studer Professional Audio Equipment
225	178	Studio Consultants
28	014	StudioPro '98
208	155	Studio Sound International
154	-	Studio Technologies
155	108	Summit Audio
35	018	Sweetwater Sound
181	135	Switchcraft
3	003	Tannoy
40	023	Taytrix
43	026	TC Electronic (Fireworx)
235	184	Thoroughbred Music
184	133	Troisi Design
60	038	Tube-Tech
234	183	Vertigo Recording Services
216	164	Walters-Storyk Design Group
154	107	Wenger
205	154	West L.A. Music
171	122	Whirlwind
220	167	Whisper Room
163	115	XWire
11	006	Yamaha (DSP Factory)
95	062	Yamaha (Disklavier)
180	128	Yorkville
214	161	Z Systems

SOUND FOR PICTURE

SFP9	067	AMS Neve
SFP24	078	Apres Midi
SFP41	091	beyerdynamic
SFP17	071	Bryston
SFP45	097	Burlington A/V Recording Media (BASF)
SFP28	080	Burlington A/V Recording Media (Sony)
SFP32	084	Cairec Audio
SFP21	074	dB Technologies
SFP37	086	Digital Audio Research (DAR)
SFP11	069	Dolby
SFP20	073	DPA Microphones (Brüel & Kjaer/T.G.I.)
SFP19	072	Eastern Acoustic Works (EAW)
SFP43	093	Event Electronics (NT1)
SFP2	065	Fairlight
SFP22	075	Focusrite
SFP44	094	Gene Michael Productions
SFP25	081	HHB Communications (Portadat)
SFP23	076	Lafont/Sascom Marketing
SFP29	079	Otari (PicMix)
SFP47	098	Panasonic/Merging Technologies
SFP40	090	Promusic
SFP38	087	ProSound & Stage Lighting
SFP40	089	Russ Berger Design
SFP48	-	Solid State Logic (SSL)
SFP10	068	Sound Ideas
SFP33	085	Sweetwater Sound
SFP24	077	Symbolic Sound
SFP39	088	Tascam
SFP4-SFP5	066	Tascam (MMR-8)
SFP15	070	TC Electronic (Finalizer Plus)
SFP44	095	Thomas Valentino
SFP45	096	Video Helper
SFP39	088	Waveframe
SFP42	092	Westlake Audio
SFP31	083	Yamaha (02R Version 2)
SFP30	082	Zeep.com

THE SURROUND SOUND DILEMMA

—FROM PAGE 62

stores data from up to 16 processors on one floppy disk or to a MIDI sequencer. A surround format translation feature allows any recorded spatialization data (movements and control parameters) to be played back completely intact in any of the other surround sound formats. A 1-in x 8-out unit is $5,840; a 2x8 unit is $8,910; and all I/Os are balanced on XLR and DB25 connectors.

Sascom also distributes the Monitor Director from Adgil Designs. Priced from under $6,000 and designed for audio monitoring control in multichannel mix environments, the unit combines rackmount audio processors and a compact remote with volume control and selectors for two monitor level presets (including 85dB calibration), source switching and dim/mute/mono buttons. Remotes are available for LCRS, 5.1 or 7.1 applications. All audio interfacing uses balanced DB25 (Tascam format) connectors and the systems is expandable for matrixing up to 200 inputs with 2/4/6/8 outputs.

STUDIO TECHNOLOGIES STUDIOCOMM FOR SURROUND SOUND

The first StudioComm products from Studio Technologies (Skokie, Ill.) provided a workable front end for monitoring tracks and talkback/control room monitoring from workstations. More recently, Studio Technologies has addressed the needs of surround sound monitoring with the Model 58 Central Controller and Model 59 Control Console, each priced at $1,299. The system provides monitoring for 4-, 6-, or 8-channel formats, and the means to select input sources, insert support devices into the audio path and control output levels to monitor loudspeakers.

The Model 58 Central Controller is a single-rackspace unit that supports two output channels. Multiple Model 58s are connected together to achieve 4/6/8-channel systems. Each Model 58 provides eight inputs, organized as four 2-channel pairs. Two 2-channel insert sections allow connection to external surround sound encoder-decoder units. The insert sections can also be used for special applications, such as creating a phantom center channel; Insert 2 can be used as part of a PFL/solo support function.

The line inputs, insert sections, and monitor outputs are electronically balanced, while the meter outputs are unbalanced.

The Model 59 Control Console allows fingertip control of all monitoring parameters (with LEDs providing complete status information) and supports up to eight output channels, and up to four 8-channel input sources.

The Model 59 has four switches and associated LEDs for selection of the input source to be monitored. Generally, only one input source will be monitored at a time, although multiple inputs can be selected for simultaneous monitoring for summing two, three or all four of the inputs.

The monitor output level is controlled by a rotary control, or a preset reference level button.

Individual output channel control is provided by the mute/solo section. One switch sets the operating mode for either mute or solo. In the mute mode, individual channels can be muted or unmuted as required. In the solo mode, one channel can be monitored while the others are automatically muted. And multiple channels can be simultaneously selected for soloing.

Under software control, the Model 59 can configure a number of operating parameters. During installation, the Model 59 is "taught" the number of output channels to be controlled, the number of channels associated with each of the four inputs, and how the two insert sections route signal. The monitor output reference level is set by taking an electronic "snapshot" of the position of the rotary level control. The dim level is selected from four available levels. A number of other operating parameters are also configured, including which of the remote-control functions will be enabled. All configuration parameters are stored in nonvolatile memory.

The Model 59 is designed to support up to four Model 58 units, and provides eight output channels and connections for up to four 8-channel sources. A special mode allows a slightly modified Model 59 to support up to eight Model 58 units. This mode again provides eight output channels but also supports connection of up to eight 8-channel sources for specialized playback applications, such as large screening rooms at motion picture studios. ■

George Petersen is the editor of Mix.

—FROM PAGE 96, RECORDING IN HONG KONG

Kong harbor, features a 32-channel Otari Concept 1 with DiskMix moving-fader automation. A variety of analog and digital multitracks are available, including Sony PCM-3324 and 3348 DASH-format systems, as well as Otari MTR-90 MkIII 24-track and Sony APR-5002 mastering transports. Monitoring systems comprise a Quested Model 212 three-way active system in Studio 1 and a Quested H208 system in Studio 2. Room charges range from HK$900 (around U.S. $110) per hour for Studio

BITS & PIECES

UK

EMI Music Studios announced that Siobhan Paine will take over management of **The Manor Mobiles** from Mike Oliver. Paine was formerly manager of Olympic Studios (London). The Manor Mobiles includes vehicles operating out of London, Barcelona and Paris...Recording engineer **George Shilling** (Blur, Primal Scream, Teenage Fanclub) has equipped his new home studio with a 32-channel Spirit Studio console and Absolute Zero near-field speakers. The studio also includes a Tascam 1-inch multitrack recorder and a variety of vintage synths, pedals and guitars...**Metropolis Studios** (London) installed a 72-channel SSL SL9080 J Series console in its new Studio E. The console will be used mainly for music mixing and recording. **Whitfield Studios** (London) also purchased an SL9080 J, to replace the 6000 Series board in Studio 3. Whitfield's clients include the Beautiful South and Simply Red...Peter Gabriel's **Real World Studios** (Bath) purchased a Sony OXF-R3 Oxford console. Also on order is a PCM-3348HR DASH Plus 24-bit, 48-track recorder...Funky Junk Ltd. (Islington) reports the following sales to London studios: one Studer A827 to **Sarm**, one Studer A800 MkIII to **Battery Studios**, an Otari MTR90 MkII to **Blah Street Studios** and one Otari MTR100A to **Eccentric Directions**... Video production company **Sonoptics** (Sussex) purchased an 8-track DAR Sabre Plus edit console. The new desk has been installed in one of the facility's three audio production suites and will be used mostly for radio commercials...The new sound system at Nottingham club **The Bomb** includes Klark-Teknik DN8000 loudspeaker processors, which were spec'd by audio manufacturers/system designers OHM Industries...SoHo post-production company **Saunders & Gordon** completed refurbishment of Studio Five. The new system includes a Soundtracs Virtua digital console and expander unit. Recent Saunders & Gordon clients have included British Airways, Eurodisney, Glenfiddich and Fosters...**Scottish Television's** Studio C has been substantially refurbished. Audio Ltd. reports that the new design includes eight UHF channels of the company's RMS2000 wireless microphone series...London P.A. designers/installers Eskimo Noise have fitted two London clubs—**The Base** and **Jazz Bistro/Smithfields**—with EV DeltaMax loudspeaker systems...

ASIA

A String Studios (Taipei, Taiwan) installed a 72-channel SSL 9000 J Series console. The board will be used for music recording and CD premastering...**The National Kaoshiung University of Science and Technology** (Taiwan) took delivery of a second DDA CS3 console, supplied by distributor Taisheng Trading Corp...**The All Asia Broadcast Centre** (ABC) in Kuala Lumpur, Malaysia, purchased Quested monitoring systems for all of its 11 audio production studios. The 350,000-square-foot facility's order is the biggest in the speaker manufacturer's history...The 20th edition of the **AustralAsian Music Industry Directory** is now available. This latest version includes more than 400 pages of contact information for artists, agents, associations, managers, music media, publishers, record labels, studios, venues and more. This is the only such directory for the Pacific Rim and costs $50. Orders can be placed via e-mail (directories@immedia.com.au) by form on the Internet (www.immedia.com.au/amic/order.html) or by fax (61/2/9557-7788). ■

2, to HK$1,650/hour ($205) for the Studio 1, including second engineer, digital multitrack and outboard.

"Most of our sessions are for record labels, with the remaining ten percent coming from jingles, commercials and soundtracks," says Ky Yuen, Tang Lou's studio manager. "And about half of our music sessions come from Taiwan-based labels, plus local acts." Sessions also involve recording lyrics in different languages—maybe Cantonese, Taiwanese and Mandarin—against a common music track. "Our new business is coming from producers and record-company [staff] that are looking for somewhere a little different. And we maintain good relationships with our in-house and freelance engineers, who are also responsible for spreading the word about our facility. The majority of acts [are] solo artists."

The Asian taste, it would seem, is for simple lyrics sung by a solo artist; with few exceptions, Western-style bands do not find favor with locals. Tang Lou also handles an increasing amount of vocal overdubs and remixes in both rooms. "Often, a producer or artist will start a project in an ADAT-equipped room, or with a MIDI/sequencer production, and then bring the tapes in here for overdubs and the mix."

And, yes, Hong Kong is very much a niche market. Here, because of the language differences and the impact of Western cultures, Yuen estimates that an album can make a good profit from sales of around 100,000 units. "In Taiwan," he says, "sales of 600,000 would put the album at the top of the local charts."

FOR MORE INFORMATION

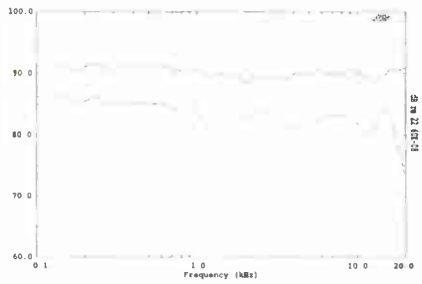
Avon Recording Studios, 2F Acme Building, 22 Naking Street, Kowloon, Hong Kong; 852/2332-7087; fax 852/2359-3828.

Q-Sound Studio Ltd., Room 1-2, 3F, Building B, Pak On Building, 105 Austin Road, Kowloon, Hong Kong; 852/2314-3118; fax 852/2314-0406.

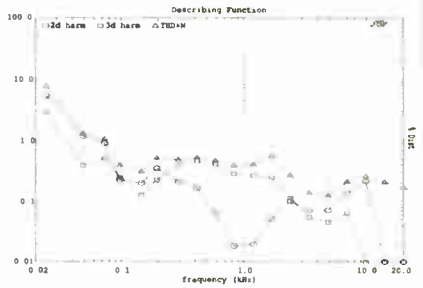
Tang Lou, 1 F, Sang Woo Building, 227 Gloucester Road, Wanchai, Hong Kong; 852/2833-1018; fax 852/2833-0923; e-mail tanglou@hk.super.net.

. . .

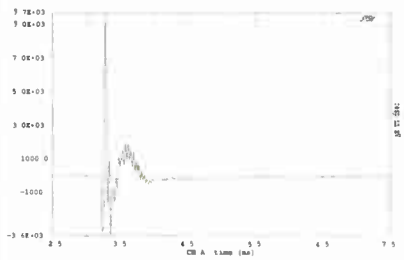
My sincere thanks to Desmond Stou and the staff at Digital Media Technology Co. Ltd. for their invaluable assistance during my visit to Hong Kong, and for arranging access to these three facilities. ■



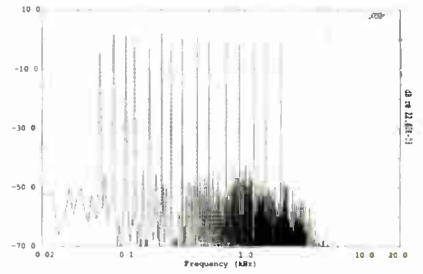
On-axis and 30-degree off-axis frequency response. Very flat on-axis response and fairly smooth off-axis response.



Distortion remains under 0.5% from 100 Hz upward. (THD+N = Δ trace; 2nd Harmonic = ❍ trace; 3rd Harmonic = ⊿ trace).



Impulse response test shows the tight phase correlation between woofer and tweeter, and fast settling time with only a little overshoot.



Spectral contamination test compores a series of input signals (tall spikes) to speaker output. Clarity is good, with self-noise almost 50 dB below input signals.

—FROM PAGE 156, LAB ANALYSIS: MACKIE DESIGNS HR824

ACOUSTIC CHARACTERISTICS

The Mackie monitors' measurements were outstanding. Frequency response was the flattest we have measured so far, varying only ±1.5 dB from 100 to 20k Hz. In Mackie's ads, the company boasts that every unit is "hand tweaked" for flattest response. From the (coherent) impulse response, it would seem that the woofer and tweeter are in the same acoustic plane.

The distortion measurement, taken at 90 dB at one meter, is quite respectable and measures well under 1% from 100 Hz upward. In the midrange, the THD+N is less than 0.5%, and the second and third harmonics are significantly lower. Spectral contamination is also very good, typically 50 dB down from the signal tones.

The print advertisements for the HR824 make much of the direct-coupled servo loop between amplifier and speaker, from which one might infer that the HR824 features a distortion reduction accelerometer feedback system. A look at the distortion measurement curves does not confirm this hypothesis; the distortion curves show a well-behaved characteristic but still have a conventional rise in distortion with deepening bass. Direct observation (yes, we looked inside) found only a two-wire connection to the woofer, not an accelerometer scheme. So we can assume that some sort of motional feedback/negative output impedance "servo loop" is used. The ad mentions "motional parameters," a partial confirmation of the latter assumption.

Negative output impedance and motional feedback bass speaker systems do have tangible benefits, including improved settling time. (Does anyone remember the Ace Bass hi-fi speakers from Europe in the late 1970s, or more recently the Yamaha YST stuff?) The HR824's settling time is quite good for a long voice coil woofer used with a passive radiator.

The elliptical passive radiator has an unusual double spider configuration that may help control the passive radiator mass. This may be as important to good system settling time as the amplifier's negative output impedance. ■

Mike Klasco operates Menlo Scientific, an independent acoustic analysis facility in Berkeley, Calif. For more information on testing methodology, refer to the Feb. '98 issue of Mix, *or visit www.mixmag.com.*

—FROM PAGE 160, MACKIE DESIGNS HR824

while the mids and highs were tightly focused, and the stereo image well-defined. The production values on this recording are very high, so no significant problems were apparent.

Led Zeppelin III was chosen because it is a classic analog rock recording, embodying all of the technical limitations of its era. The HR824s revealed lots of tape hiss, bleed-through, distortion and even Mellotron wobble. Of course, they also revealed the innovative panning, double-tracking, and reverb and echo effects that distinguish this as one of the most influential rock recordings ever made.

Epitaph is a work for "jazz orchestra," recorded live in 1990, long after Mingus's death. The orchestra consisted of 31 instruments, including six trumpets, six trombones, eight saxes, contrabass clarinet, vibes, two bassists, etc. It was recorded in orchestral fashion, with one overhead stereo mic pair and spot mics on the various sections, and it displays all of the strengths and weaknesses commonly found in such recordings. The HR824s revealed the flaws but allowed each instrument to "breathe" in its own space. The overall imaging was extraordinarily clear and detailed.

Dark Matter is a CD by Cloud Chamber, an improvisational quintet consisting of fretless bass, cello, cymbalom, percussion and (me on) guitar. I chose it because I mixed it using much more expensive monitors, and I wanted to see how those mixes would fare on the HR824s. I am happy to report that they translated very well, and that there was really not a lot of difference between the two. The same problems were evident (such as a very slightly distorted cymbalom part on one piece), but so were the most subtle details (such as slight auto-panning effects, complex reverb tails) and the overall clarity and spaciousness.

If you are in the market for a pair of compact active monitors, and you are not afraid of the truth, do yourself a favor and give the Mackie Designs HR824s a critical listen.

Mackie Designs, 16220 Wood-Red Rd. NE, Woodinville, WA 98072; 800-898-3211; fax 425-487-4337. Web site: www.mackie.com. ■

Barry Cleveland is the editor of the Mix Master Directory *and the* Recording Industry Sourcebook. *He is also a composer, independent engineer/producer and guitarist.*

MARKETPLACE

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 Products

SEE OUR AD IN MARKETPLACE pg. 242

Employment Offered

Director of Recording Services
Full-time position effective 6/1/98. Degree in music recording and professional experience in studio and live recording. Record and/or supervise the recording of 200+ concerts/recitals annually, provide edited copies for archival, broadcast and private use, maintain recording equipment, supervise budget and student staff. Resume & tape to: Luis Ruiz, School of Music, University of Miami, PO Box 248165, Coral Gables, FL 33124-7610.

Business Opportunities

Busy S.F. 24+-track studio for sale. $100,000. Established 20+ years. Serious inquiries only. (415) 584-3874.

Employment Offered

AUDIO TECHNICIAN
FREELANCE
Progressive N.Y. facility seeks individual for P/T position (evenings). 3 years min. experience required. Fax resume to: (212) 629-5976.

Audio Engineer
We are a top NYC commercial recording facility seeking a highly qualified engineer to add to our staff. You must have a client following in the advertising or promo field. Please fax resume in confidence to (212) 575-4799.

Recording Engineer Broadcasting
Multimedia/Digital/Video/Film
Radio/TV/Sports/News/DJ/Talk Show
No experience required!
On-the-job-training
in local major Recording Studios & Radio/TV Stations
Part-time, nights, weekends - Call recorded info line for FREE video
1-800/295-4433 http://www.sna.com/musicbiz

Music Business Production Technology Faculty
Assistant Professor/Instructor to teach courses in recording technology, audio engineering/live recording techniques, concert sound reinforcement, and artist/tour management. Typical load is four class sections per semester plus student advising. Involves a full-time commitment to teaching. Tenure-track appointment in **The Mike Curb Music Business Program**. Master's degree required; doctorate preferred. Teaching experience desired. Effective date: August 1, 1998. Women and minorities are urged to apply. AA/EOE.
Belmont University is a comprehensive institution with wide-ranging undergraduate programs and growing graduate offerings serving approximately 3,000 students. Belmont's vision is to be a premier teaching university bringing together the best of liberal arts and professional education in a consistently caring Christian environment.
Send letter of application, statement of personal educational philosophy, complete resume and curriculum vita, and contact information for at least three references to:

Wesley A. Bulla, Chair, Studio Faculty Search Committee
The Mike Curb Music Business Program
Belmont University
1900 Belmont Blvd.
Nashville, TN 37212

Recording Engineer. 24-track Studio located in a nice area in the northeast is accepting resumes for one position as First Engineer. Starting wages $13 an hour with incentives. All replies carefully considered. Mail To: Sound Lab, Box 160, New Kingstown, PA 17072.

Midtown audio post facility seeks experienced engineer. Please send reel & resume to: Cliff Schwarz Music Production, 62 West 45th St., 12th Fl., NY, NY 10036.

Lecturer, Music Engineering: 9-month, full-time, non-tenure-track position effective 8/15/98. M.S.E.E. preferred plus professional experience and 2-3 years of teaching experience. Teach audio/video hardware and software aspects of automated consoles, tape & disk digital audio & video recorders and synchronizers, IBM and MAC computer platforms and software, and other pro audio equipment. Maintain studio equip., student advising. Resume and 5 references to: Kenneth Pohlmann, School of Music, University of Miami, PO Box 248165, Coral Gables, FL 33124-7610.

Equipment Financing

LFCI Equipment Leasing
DIRECT LENDERS
SPECIALIZING IN AUDIO - VIDEO EQUIPMENT
⇒ **No Down Payment**
⇒ **Application Only For Up To $50,000**
⇒ **New & Used Equipment**
CALL: (800) 626 - L F C I
VISIT OUR WEB SITE: http://www.lfci.net
APPLICATIONS, QUALIFICATIONS, THE LEASE PROCESS
ALSO APPLY FOR OUR $10,000 CREDIT CARD / LEASE

DIGITAL/MIDI PRODUCT MANAGER
PEAVEY®
Visit our web site at http://www.peavey.com

Peavey Electronics Corporation is seeking an experienced & innovative Digital/Midi Product Manager. Responsibilities will include new product development, market research, promotion of digital & midi product lines & support of dealers & sales force.

The ideal candidate will have past industry experience & proven success in sales/marketing. A Marketing degree is preferred, but business related degree or comparable experience accepted. Technical expertise and the ability to play digital/midi instruments is essential. Must possess strong verbal & written communicative skills & excellent analytical & problem solving skills. Should also be PC literate, with Excel & Word proficiency.

We offer a competitive salary & excellent benefits package. For an outstanding opportunity, please fax, e-mail (text only) or mail your resume & salary requirements to:

Peavey Electronics Corporation
Amy Boutwell, Human Resources Administrator
P.O. Box 2898, Meridian, MS 39302-2898
Fax: (601) 486-1198 E-mail: aboutwell@peavey.com
EOE M/F/D/V

Mix Marketplace & Mix Classifieds

For Rates and Deadlines Call
Robin Boyce-Trubitt
(800) 544-5530
boycemr@cardinal.com

Equipment Financing

Equipment for Sale

SEE OUR AD IN MARKETPLACE pg. 243

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.

FOR SALE NEW AND USED
Prof. Sound & Production Equip.
Clients: JBL, Disney, A-1 Audio.
Cash Landy, Sales Broker
(310) 391-1365
email cashlandy@worldnet.att.net
http://members.aol.com/brokerage
What is it that you need to
buy or sell today?

THE MIC SHOP
TUBE MICROPHONES
BOUGHT/SOLD/SERVICED
Mic Power Supplies & Cables
Bill Bradley (615) 595-1717
Fax: (615) 595-1718
Visa/MasterCard
http://www.micshop.com

Amek Einstein Super E 80 inputs Supertrue PB, $35k; 9098 mic EQ, $1.6k; Neve 5324 24x8 with 33114 modules PB, $30k; Neve Kelso 10x2, $12k; AMS Audiofile 2in, 8 out, SMPTE sync, $3k; MCI JII24,16 2" 16tr, $7k; Roland Dimension D, $600; Neumann M 269c, $4k; U77, $2k; UM 57, $2k; Neve 5320, 20x4x2, $22k.
Tel: (847) 249-3467

OMNIRAX
STUDIO FURNITURE
MixStation /O2R

Custom Design
and
Modifications Available
800.332.3393
FAX 415.332.2607
Outside U.S. 415.332.3392
WWW.OMNIRAX.COM P.O.Box 1792 Sausalito, CA 94966
Available for
All Mackie
8•Bus mixers, &
Eurodesk

ADAT UPGRADES—
MIC MODS
Component-level upgrades for mixing consoles, tape machines, mics & 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
http://home.earthlink.net/~jwilliams3/

Otari MTR90 Series II 2-inch 24-track tape machine with remote. Excellent working and cosmetic condition, $20,000. Please call (312) 337-0008.

Bayview Pro Audio
Tumwater, WA USA
Toll-Free: (888) 718-0300
Int'l: 1-360-753-3862

Software

Sound Forge 4.0d	CALL
Sound Forge CD Architect	$249
Sound Forge Noise Reduction	$229
Steinberg WaveLab 1.6	$299
Samplitude Studio 4.0 Upgrade	$299
Waves Native Power Pack	$350
Steinberg Cubase VST-PC	$299

Sound Cards

Digidesign "bundle" MAC	under $850
Zefiro Acoustics ZA2	$419
SEK'D PRODIF 24	$279
Sonorous Studi/o w/cables	$799
AdB Multi WAV 24	$399
SEK'D Analog ARC 88 10x10 I/O	$699
EVENT GINA	$399

Monitors & Mics

Rode NT2 Omni & Cardoid	$599
EVENT 20/20 bas Pwr. Biamped	$799

Web Site: http://www.olywa.net/duper
We Accept Major Credit Cards

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
Orders (800) 334-8187
Info (309) 346-3161
Fax (309) 346-6431
www.dpc.net/~milamaud
e-mail:milamaud@dpc.net

bpmusa@southfla.net
German Handmade Large Diaphragm Mic's
bpm
Starting @ $549.95
studiotec.uk
305.5311.BPM

SEE OUR AD IN MARKETPLACE pg. 238

ODYSSEY PRO SOUND
New, Used & Vintage
Quality Recording Equipment
Buy, Sell & Trade
Vintage*Tube*Classic*
Consoles*Tape Machines*
Mics*Outboard*
Neve, API, Fairchild, Pultec
UREI, Neumann, Studer
Manley, Quested & more...
Customer Satisfaction
& Quality Guaranteed!
Phone: (978) 744-2001
Fax: (978) 744-7224
MC VISA AMEX
www.odysseyprosound.com

THE CASE SPECIALISTS
FREE CATALOGUE

(800) 346-4638
(516) 563-8326, NY
(516) 563-1390, Fax
Custom or stock sizes.
Our prices can't be beat!
Discount Distributors

Every major brand of everything. Millions of dollars of musical gear in stock. ALTO MUSIC. Guitars, recording, keyboards, amplifiers, drums, pro sound, new & used. One of the largest selections in the country. We ship everywhere!
(914) 692-6922•680 Rt. 211
East Middletown, NY 10940
Ask for Uncle Freddy—He loves ya!

The AMPEX Source

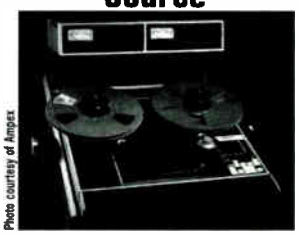


Photo courtesy of Ampex

- **ATR100 sales & restoration services**
- **1/2" two-track mastering conversion featuring Flux Magnetics heads**
- **HDV-2 modular tube electronics and transformerless I/O for ATR100**
- **Transports upgraded for better-than-new performance and reliability**
- **MM1200 service and upgrades**

Call Michael Spitz at 650-574-1165
Fax 650-574-2064
ATR SERVICE COMPANY
AMPEX SPECIALISTS

SOUTHERN CALIFORNIA PRO AUDIO
NEW, USED AND VINTAGE
THE LAST CALL YOU'LL HAVE TO MAKE!
Phone: (818) 222-4522
Fax: (818) 222-2248

BALANCED AC POWER SYSTEM
Balanced AC power is as good as they say it is, but doesn't cost as much as they say it does. $499 buys 1,500 watts packaged the way you'd use a B.P.S. Call (573) 334-6740 or www.spectrumxfm.com for info.

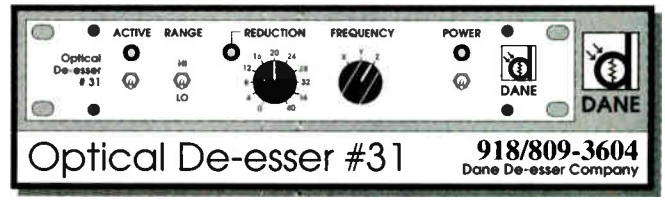
HIGH-END GERMAN-DESIGN subwoofer amps, 70W-125W-150W, 150W with RC. Perfect for listening/home theatre. Also new Alconc aluminum-cone speakers, more. Free info. Burnett Associates. (603) 924-2383. FDTF77B@prodigy.com.

VINTAGE USED

CONSOLES: 1994 SSL G+ w/Ult. 100 in, call*SSL 6056 E/G, call*Soundcraft 3200 56in w/Uptown*SSL 4064 E/G, call*Neve 8128 32 in, $36k*Neve 8128 56 in w/FF, $85k*Trident 80B, call* Trident 24 Series 28 in*Neotek Elite 56 in w/auto,call*Amek Big 28 in, $15k*Neotek Elite 40 mono, 8 stereo, $45k*1992 Otari Series 54, 36 in, $19.5k*Otari Concept I, 32 frame, call*DDA AMR 24 36 in, $16k*MCI JH636 36 in, $10k*Sony MXP 3020, 20 in, call* **RECORDERS**: Studer a80/800/827 call*Otari MTR100, call*Otari MX80, $14k*Sony APR24 $16.5k*Sony JH24, $14k* 3M M79 w/ Selectake II, call*Synclavier, $35k***DIGITAL RECORDERS**: Sony 3324S 24-trk,call*Mitsubishi X-850 w/Apogee filters, $18k*Sony 3348***MICS**: Neumann U87/U67/U47/M49, Elam 251, AKG C12, 414, call for prices* **MONITORS**: UREI 813's, call*Sony SEM-2W-NW 2x15's w/horn, call*Tannoy 2x15's, call***REVERBS**: Lexicon PCM 70, 80, 90, 300, 480L, call*AMS RMX16 & AMS DMX 1580s, call***COMPRESSORS**: UREI, Teletronix, Fairchild, Neve, Drawmer, Ear, Joe Meek, etc. call

WE BUY AND SELL VINTAGE NEVE & API MODULES,
PULTECS, TELETRONIX, TUBE MICS.
NEW EQUIPMENT IN STOCK. MAJOR CREDIT CARDS ACCEPTED.
Tube-Tech*TC Electronic*Lexicon*Drawmer*D.W.Fearn*Demeter*Focusrite*Amek*Milab*
Eventide*dbx*T.L. Audio*Millennia*Symetrix*FM Acoustics*Hafler*Senn*Audiomate*JoeMeek*
Quested*Bruel&Kjaer*EV*Aphex*KRK*Fostex*AKG*Beyer*Dynamics*SPL*Gefell*Equi=Tech*

HARBORSOUND
180a CENTRAL STREET SAUGUS, MASS 01906
Ph: (781) 231-0095 **Fax: (781) 231-0295**



Equipment for Sale

WESTERN VINTAGE MICROPHONES

RUSSIAN VALVE (VINTAGE) FET (MODERN)
OCTAVA MK012.....$180

from RUSSIA

TEL/FAX: 011-7-095-299-1161

VINTAGE
NEUMANN
NEVE &
STUDER
MISTY HILL AUDIO
Call for list.
512.338.6777
www.kdi.com/~stardog

Hard Disk Recording
Sales 800.801.0153
770.599.0681
F 770-599-6469
www.missionrec.com
Recording and Audio

We've got your n'hummer.™
Kills the hum in audio lines. No transformers, noise gates or comb filters. It works; guaranteed! $249.95 + s/h for a 2-channel unit.
www.stro-lion-technologies.com
800.567.0881
no hum. cool.

---

144 Pages!
RDL Mogami Neutrik Waber Edac ETA
Bi-Tronics Manufactured & Distributed Products.
FREE CATALOG!
BI-TRONICS
Voice: 800-666-0996
Fax: 800-569-4244
E-mail: info@bi-tronics.com
www.bi-tronics.com
Not affiliated with Bitronics, PA

Soundtracs 32x2x16, 6 AUX sends, exclnt British EQ, new-$15,800, sell for $2,985. With completely wired Bantam patch-bays (4) add $975. Genelec 1030A's w/heavy shielding option, $1,325. 8-ch Pro Tools 3.0, DINR, Sound Designer II, Studio Vision Pro, Quadra 950, (2) rack-mount Dynatek hard drives, (1.2 gig ea), $3,485. Drumkat 3.0, $745, (kick drum trigger & 3 Spike triggers add $250). New Power Computing Power Tower Pro 250, 128 MHz, RAM, 4 gig RAID array, 604E/250 MHz, 6 PCI slots, 24x CD-ROM, full warranty, unopened original box, paid $3,500, sell for $3k. All equpt. in mint condition. Dave @ (201) 818-0001

32-ch, 24-bus, 64 inputs Soundtracs Quartz in-line console w/ TT patchbay, full automation. 4 years studio use only. Primo, $12k or best offer. JL Cooper SMPTE sync box, $100. Lexicon LXP-1, best offer. (703) 335-1104 or (703) 791-4552 ask for Lane.

NEVE™ 1272
MIC PREAMPS
2 CH- RACKMOUNT
BEST PRICES!
813-643-8114

SINGERS! REMOVE VOCALS
Unlimited Backgrounds™
From Standard Tapes, Records, & CDs with the Thompson Vocal Eliminator™
Call for Free Demo Tape.
Internet http://ltsound.com
LT Sound, Dept MX-4
7988 LT Parkway
Lithonia, GA 30058
24 Hour Demo/Info Line (770)482-2485 - Ext 8
Best Vocal Eliminator™, Key Changer, Voice Enhancer!

Klay Anderson Audio Inc.
PRO AUDIO SALES AND SERVICES
"Good Sound is the Absence of Bad Sound"
1.800.FOR.KLAY
7054 SO. 2300 EAST · SALT LAKE CITY, UT 84121
VOICE 801.94.AUDIO · FAX 801.942.3136
HOMEPAGE: http://www.klay.com

---

funky junk Ltd.
For Classic consoles plus the largest stock of new & used pro audio gear in Europe!
T: 011-(44)-171-609-5479
F: 011-(44)-171-609-5483

SEE OUR AD IN MARKETPLACE pg. 238

Ribbon Mics
Sales, Parts & Service
The Best in the World
Matched Pairs & Stereo Bars

Coles 4038
RCA 44s & 77s
(800) 798-9127
Call Wes Dooley

NEW, USED, DEMO EQUIPMENT
BEST SELECTION OF DIGITAL/ANALOG RECORDERS, CONSOLES, DAWS, OUTBOARD GEAR
Otari C1 4032, Yamaha 02R, API 1200 rack system, Dynaudio Monitors, Alesis ADAT, Tascam DA-88, Sony PCM800, Otari Radar 24tk, Pro Tools III, All Digidesign Plug-Ins, Mackie 8-Bus, Apogee AD1000, Lexicon PCM80/90, TC Elec. M5000, CD Recorders, API, GML, ADL, Summit, Focusrite, Demeter, Lucas, TL Audio, Neumann, AKG, Microtech, RØDE, B&K, Genelec, Dynaudio.
Studio and System Design, Financing, Factory Service/ Installation, Experienced and Knowledgeable Sales Staff.
EAR PROFESSIONAL AUDIO
(602) 267-0600
http://www.ear.net

MERCENARY BOSTON
AUDIO
WE BUY, SELL AND TRADE VINTAGE EQUIPMENT.
"this is not a problem"
(508) 543-0069 TEL
(508) 543-9670 FAX
http://www.mercenary.com

OCEAN AUDIO INC.
SELLS AND BUYS USED EQUIPMENT SINCE 1982
LOTS OF RARE, OLD & NEWISH, STRANGE AND SOME VERY FUNKY PIECES
LIST YOUR UNDER-USED EQUIPMENT FREE ON OUR DATABASE.
THE LARGEST USED EQUIPMENT LISTINGS IN THE WORLD
Phone (310) 459-2743 (303) 449-8322
Fax (303) 449-8558
Email- hadlerd@netOne.com
Now internet Listings
http://www.visionwork.com/oceanaudio

Masterpiece A/V, Inc.
Call Aaron & Jamey
For a Wide Selection of New Professional Audio/Video Gear Media & Accessories
Toll-free (888) 776-2835
fax (860) 354-9057
http://www.masterpieceav.com

MARQUETTE AUDIO LABS
* RECORDING EQUIPMENT *
CUSTOM RACKING OF VINTAGE GEAR
V-72, V-76, NEVE, AUDIX, CALREC ECT...
MICS, PREAMPS, COMP/LMTRS + MORE
Phone (510) 581-3817 Fax (510) 581-3917

TRUE STEREO!
Rent the amazing Sound Field ST 250 stereo mic and hear what you've been missing.
(650) 742-9166
Hi-Tech Audio

SEE OUR AD IN MARKETPLACE pg. 239

---

www.UsedSSL.com

FAIRCHILD 670
Excellent condition, unused for last 19 years, 1 set of new tubes + spares included. Interested? Fax me for the history & make an offer I can't refuse. Fax to Germany: 49-5551-8020.

SOUND ANCHOR
SPECIALTY AUDIO STANDS
(407) 724-1237
DESIGNED FOR ULTIMATE PERFORMANCE BEHIND CONSOLE AND FREE SPACE APPLICATIONS.
STANDARD & CUSTOM MODELS
SOUND ANCHORS
SEE OUR AD IN MARKETPLACE

SEE OUR AD IN MARKETPLACE pg. 242

Neumann/Telefunken
The German Source:
Akzent Audio
actual listing on
www.thatworks.com/akzent/
phone us: (212) 330-9124
Germany: 011/49/721/373/622
Fax: 011/49/721/373/611
e-mail akzentaudio@t-online.de

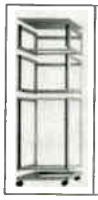
DATRAX®
Originator in DAT tape storage systems.
800 ·9· DATRAX
BRYCO PRODUCTS

SEE OUR AD IN MARKETPLACE pg. 241

---

2 Neve Melbourne 12x2 mixers; Neve quad box with 33115 EQ; Studer A80 MKII 16-tr. (very low hours) & 1/4-inch; LA2a; 1176 (pre-blackface); GML 8900MKIII limit; Neumann U67; AMS ST250 stereo "soundfield" mic. (604) 351-7109. andrewgordon@yahoo.com

---



The RACKIT™ System
Modular, stackable oak units hold all recording formats
New: Racks with mounting rails!
Free mail-order brochure
(please mention Mix)
Per Madsen Design
(415) 822-4883 • PO Box 882464
San Francisco, CA 94188

Equipment Wanted

(800) 264-6614
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.** 69 years in business. **Worldwide delivery.** Visit our new **22,500-sq.-ft.** location. Call, fax or email us today. **carusomusi@aol.com OR sales@caruso.net.** Visit us at www.caruso.net. Start saving money today. Call **Caruso Music**, 94 State St., New London, CT 06320 USA. Outside of the U.S. call **(860) 442-9600** or **(800) 264-6614**.

WANTED 45/78 RECORDS
radio station/studio equipment
Technics SP-10MKIII turntable
RECORD CUTTING LATHES
Westrex Scully Neumann Ortofon
TUBE Marantz McIntosh Fairchild
Cinema-Engineering UREI Pultec
Gates Collins etc. (612) 869-4963

USED ADATS WANTED. Easy exchange toward a newer or different format. Everything available. Save **THOUSANDS** when you deal with our 69-year-old company. **UPGRADE TODAY.** Call, fax or email for details. Worldwide delivery. **CARUSO MUSIC**, New London CT: sales@caruso.net
(800) 264-6614
Outside of the US (860) 442-9600
http://www.caruso.net

Equipment Rental

"RENTALS WITH SERVICE"
DESIGN FX AUDIO
Professional Audio Rental Company for **Music • Film • Post**
We Carry Everything!
818/843-6555 **800/441-4415**

Instruction

BE A RECORDING ENGINEER
★TRAIN AT HOME★
Easy Home-Study practical training in Multi-track Recording. Join our successful working graduates or build your own studio. Career Guidance. Diploma. Accredited.
FREE INFORMATION:
Audio Institute of America
2258-A Union St. Suite AL, San Francisco, CA 94123

STUDY SOUND ENGINEERING IN LONDON
* With the largest audio college. Established 1976!
* Individual practical time on Neve VR and SSL consoles
* Full B.A (Mus.Prod) degree from a leading University - exclusive.
* 9 months full time - 600 hours (AAS)
* 25 Colleges - 7000 students
* International Job-placement
TECHNOLOGY COLLEGE
SAE AUDIO COLLEGE
Tel. + 44-171-6092653
www.saecollege.edu.au

STUDY SOUND ENGINEERING IN MILANO
TECHNOLOGY COLLEGE
SAE AUDIO COLLEGE
Tel. + 39-2- 8912 0540
www.saecollege.edu.au

PRO TOOLS® 4 INTERACTIVE TRAINING CD-ROM
COOL SCHOOL INTERACTUS VOL.162
800-729-6919
e-mail: coolbreezesys@ee.net
http://www.coolbreezesys.com

The Midwest's Premiere Recording School.
New for Fall 1997!
MUSIC TECH
Associate Degree in Music Production
1-800-594-9500 www.musictech.com

SEE OUR AD IN MARKETPLACE pg. 240

STUDY SOUND ENGINEERING IN ZURICH
TECHNOLOGY COLLEGE
SAE AUDIO COLLEGE
Tel. + 41-1- 445 2040
www.saecollege.edu.au

ThunderBird RECORDING SCHOOL
EXTENSIVE TRAINING IN THE RECORDING ARTS
APPRENTICE-STYLE PROGRAMS
LIMITED ENROLLMENT
CALL TODAY FOR YOUR FREE BROCHURE.
1-800-914-8004

STUDY SOUND ENGINEERING IN SYDNEY
TECHNOLOGY COLLEGE
SAE AUDIO COLLEGE
Tel. + 61-2-9211 3711
www.saecollege.edu.au

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) 904-7700.

STUDY SOUND ENGINEERING IN VIENNA
TECHNOLOGY COLLEGE
SAE AUDIO COLLEGE
Tel. + 43-1- 330 4133
www.saecollege.edu.au

STUDY SOUND ENGINEERING IN PARIS
TECHNOLOGY COLLEGE
SAE AUDIO COLLEGE
Tel. + 33-1- 4811 9696
www.saecollege.edu.au

Internet Services

www.musicians-gear.com
35,000 prices. 350 links. The European based data turntable. Check it out!

Join 20,000 audio pros Buy-Sell Gear
Search for pro contacts on the web @ www.proaudio.net

Maintenance Services & Repairs

DAT Digital Audio Tape Machine Service
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

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 inc
973-579-4849 FAX 973-579-7571

VINTAGE GEAR REPAIR
Tubes, Transistors, (yes even ICs), Mic pre's, limiters, amps, consoles, tape machines. We repair & restore it all!
Field service too!
retrospec/TROUBLE REPORT
Ph: (914) 688-7329

Midwest Digital Services Inc.
DAT and DA-88 Repair
(Chicagoland Area)
Professional DAT Service since1985
Authorized by
Panasonic, Sony & Tascam
(888) 809-3309
Phone: (708) 448-7539
Fax: (708) 448-7678

HEAD RELAP/REPLACEMENT
multitrack analog specialists
iem
Palatine, IL
(800) 227-4323

Mix Classifieds are your best advertising buy in the industry.
Phone (800) 544-5530

Sound Restoration/ CEDAR Processing
78, LP, Acetate, Open Reel Transfers/Reasonable Rates
Allen Lowe Archive And Sound Service
60 Hillside Ave. South Portland, Me 04106
Phone:207-741-2846 Fax:207-741-2847

Fleetwood MultiMedia
1000 CDs from $799
500 Chrome Tapes $715
Includes Everything
7-10 Day Turnaround
800-353-1830 (617) 289-6800
SEE OUR AD IN MARKETPLACE pg. 239

Recording Services

CUSTOM COMPACT DISCS
Affordable single copy CDs
starting at $20.
$5.00 OFF WITH THIS AD
46 PRODUCTIONS
42W557 Hawk Circle
St. Charles, IL 60175
TEL (800) 850-5423
FAX (800) 203-1725
Contact us on the Internet at info@46p.com
Visit our Web page at http://www.46p.com

SC Mastering Studios
Sixty minutes of your audio Digitally Mastered & put on 10 CDs for $449.95.
(404) 634-3430, lv. msg.
http://www.mindspring.com/~SaucyChaucer

Hear the Magic
Master with us...and make an impact!
CD MASTERING...
CD MANUFACTURING...
CD BOOKLET PRINTING...
...SEE US in MARKETPLACE
Orlando, FL (800) 344-4361
http://www.digido.com
DIGITAL DOMAIN™
SEE OUR AD IN MARKETPLACE pg. 241

WE'LL BEAT ANY PRICE ON CD'S
- CD'S
- QUICK
- BEST QUALITY
- DIGITAL CASSETTES
- PERSONALIZED SERVICE
- TOTAL COMPLETE PACKAGES
- LOWEST PRICES, CALL US LAST!

(813) 446-8273
Total Tape Services
639 Cleveland St. / Clearwater, FL 34615

CONVERSION MEDIA
SHORT RUN DUPLICATION SPECIALISTS

	Packaged	Raw	Bulk
10 Discs	$99	$74	$72
20 Discs	$178	$145	$140
50 Discs	$399	$329	$319
100 Discs	$599	$519	$509
1000 Discs	$1375	$999	$749

Packaged Discs in Jewel Case with full color insert and B/W inlay, label on disc. Raw disc include label and jewel case from supplied PMCD master and film where applicable. Bulk Discs come on a spindle
CALL FOR YOU FREE COMPACT DISC DEVELOPMENT GUIDE
www.conversionmedia.com
1-888-999-1760

Records Tapes CD Services

CD-Recordable
$1.46
MEDIA SUPPLY
800-944-4237
SEE OUR AD IN MARKETPLACE pg. 239

KYRIC-disc
1,000 Bulk CDS
$850
Ready in 7 Working Days
1-800-221-0503
1131 E Locust St. Ontario CA 91761

1000 Bulk CDs $620!
1.888.891.9091
MEDIA
SEE OUR AD IN MARKETPLACE pg. 243

EuropaDisk
Why deal with brokers when you can work direct with our factory and save? Major credit cards accepted.
- Retail-Ready CD Packages
- Bulk CD Replication (as few as 100 pieces)
- Cassette Duplication
- 7"/45 & 12" Vinyl Records
- Graphics Design & Printing

Disks With No Risks
BEST PRICE. BEST SERVICE. PERIOD.
EUROPADISK, LTD.
http://www.europadisk.com
Free catalog or quote:
(800) 455-8555

500 CDs w/ 2PG COLOR BOOKLET OR 1000 CDs W/ JEWEL CASE, INSERT YOUR BOOKLET AND SHRINKWRAP $999
800-401-8273
BALLISTIC COMMUNICATION

FT Digital Productions
DAT, Cassette & CD on a CDR
(Mastering)
$75.00
Toll Free (888) 777-9070
Fax: (978) 794-8203
email: ftdigital@aol.com

RELIABLE "ON HOLO" TAPES*/PLAYERS
*MADE IN USA
CALL OR FAX FOR SAMPLE TAPE
MANN ENDLESS CASSETTE INDUSTRIES
3700 SACRAMENTO ST., S.F., CA 94118
TEL: (415) 221-2000 FAX (800) 683-7569

HDCD
MASTERING
by the people who have been doing it from the start

Paul Stubblebine has been mastering with this exciting new process since the world's first HDCD release in 1992. He will bring to your recording the same care and attention that he has used on HDCD releases by: Jerry Garcia and David Grisman, the Seattle Symphony, John Lee Hooker, the Minnesota Orchestra, the Wyrd Sisters...just to name a few.

for more information call 1-800-948-HDCD

HCDC® and High Definition Compatible Digital™ are registered trademarks of Pacific Microsonics, Inc. Patent No. 5,479,168. Paul's Gourmet Mastering, located in beautiful San Francisco, is not affiliated with Pacific Microsonics.

1000 Raw CDs for $800
includes 3 color disc label

CD Replication Mastering
CD/Cassette Duplication Printing
one-offs Posters
CD/CD-Rom Hybrids Professional Design
call for a free catalog
1·888·DISC·MFG
1·888·347·2634
www.prophetmedia.com
PROPHET Disc Manufacturing


Bulk CD's
as low as
60¢

CD-Audio & CD-ROM
- Audio & Video Cassette Duplication
- Mastering • 1630 • PMCD • CDR
- Graphic Design & Printing
- Retail-Ready Packages • Fast Turn

CD SONIC
Tel: (617) 424-0670 Fax: (617) 424-0657
Toll Free 1-888-CD SONIC (237-6642)

Records Tapes CD Services

SEE OUR AD IN MARKETPLACE pg. 240

Records Tapes CD Services

MIX Classified Dept.
e-mail address
mixclass@cardinal.com

SEE OUR AD IN MARKETPLACE pg. 238

SEE OUR AD IN MARKETPLACE pg. 243

Mix Upcoming Classified Deadlines:

June '98 closes April 15
July '98 closes May 15
August '98 closes June 15

Upcoming Tradeshows:

- *Pro Audio Light & Asia*
- *Summer NAMM*
- *Audyt, Mexico City*

Call for Rates:
(800) 544-5530
Fax: (510) 653-8171

What Are You Looking For?

Join the thousands of audio professionals who rely on Mix Classifieds and Mix Marketplace.

MIX CLASSIFIEDS/MIX MARKETPLACE
(800) 544-5530
FAX (510) 653-8171

mixclass@cardinal.com

Video Equipment, Services & Supplies

VIDEO w/TC FOR LOCKUP. Rebuilt 3/4" w/Warr., Betacam. 1" VTRs: SONY, JVC & AMPEX. JVC & SONY Remote Controls. SONY VP-5000, 5600, 5800, 5850, BVU-800, 950, VO-9800, 9850. Four-Month Warranty. (212) 580-9551 or (212) 206-1475. Fax: (212) 929-9082. Michael Temmer.

Miscellaneous

Studios

Split-level, 2-bdrm house w/professionally designed control room & ISO booth. Perfect for composer or musician to live & work. Comp. remodeled interior incl. kitchen & separate in-law apt. Oakland, CA hills. $300k Call Tao @ (510) 530-1039.

ANALOG DIGITAL STUDIO
Active professional 24-trk. recording studio with CD pre-mastering & desktop pub. suites. Est. 34 yrs in Houston area. Major nat'l/internat'l label clien-tele. Asking $220k. Serious in-quiries only. (713) 861-0763.

The Perfect Project/Post Studio: lovely 3-br house in So. Mpls. (1mi. to lakes) w/pro control rm, studio, ISO rms, sep. ent w/bath, office, great pro equip., wiring, & more! $220k. John@ (612)825-2605

Very successful small studio in Univ. town. 24-trk, 2-in, 16 trks, DA-88, great mic collection, nice outboards & great DAW. Incl. commercial real estate 5 blks from dwntwn mall. 20 yrs in biz. Exclnt. client base; room for expansion (architect's plans almost done). Family situation requires sale. Serious inquiries only (888) 776-2829.

World Famous Recording Studio
Celebrity owned. 2 studios and offices. Great, convenient L.A. location. Currently operating; good income. Owner moved to East coast. Serious inquiries only! No Brokers. Mark @ (213) 660-5976.

Mix Subscription Questions?
(800) 843-4086

STUDIO FOR SALE
Busy 24-trk. recording studio with 3 tracking rooms, ISO booth, very accurate control room, lounge, kitchen, repair shop and storage. Central heat & air. Convenient location to NYC (Douglaston, NY), great vibe and landlord/lease. 2,500 sq. ft. Very low operating costs. Equipment includes: API, Studer, Otari, Lexicon, Eventide, Summit, Bryston, Hot House, Neumann, AKG, Hammond B-3, Yamaha G-2 piano, Marshall, Fender, Ampeg, etc...Meticulously maintained. Large client base for continuing income. Not an auction! Turn-key operation. Call for details. **Ask for Bill or Chris (718) 224-9158.**

TASCAM DA-88/DA-38

SECRETS THE MANUAL DOESN'T TELL YOU

Amaze your friends! Make your Tascam DA-88 or Sony PCM-800 jump through hoops with these simple, undocumented tricks. (Most of these also work with the Tascam DA-38.)

Software Secrets: Knowing your deck's software version is vital for troubleshooting or calling in for technical support. To do this, hold the Stop, Play and Record buttons while powering up. The deck's servo version is revealed by holding the Rewind, Fast Forward and Stop keys during power up. If you need an SY-88 sync card's software version, hold the Fast Forward, Play and Record buttons during power up. The software version of an RC-848 remote controller connected to a DA-88 is displayed by powering up the DA-88, followed by pressing the Rewind, Fast Forward and Stop keys on the RC-848.

New Power-Up Greeting: When powering up, the DA-88/DA-38 runs self-diagnostics and displays the word "Tascam" (or "Sony" on the PCM-800) on the meters. However, you can change this greeting via the following:

1. Turn the recorder off.
2. Hold down the Fast Forward, Stop and Play keys, then turn the power on.
3. Press Stop before the scrolling "Tascam" message appears. The machine will enter Test mode and display the word "TEST."
4. Make sure the display is in ABS mode, then press and hold the following four keys, in this order: Up, Down, Display and Remote.
5. The letter "A" will appear.
6. Using the Up/Down keys to select letters, enter your new message. For example, to enter the word "George" (this is highly recommended), scroll to G, then press Display; scroll to E, then press Display, and so on.
7. Once you've entered your new message, press the Up and Down keys simultaneously to exit Greeting mode.
8. To see your new message, turn the recorder off and power up again. This new message will be displayed every time you power up (unless you change it).

Check the Mileage: For keeping maintenance logs or simply checking the odometer on a used DA-88 before buying it, find out the exact number of hours on the head drum by holding the Play and Stop buttons while powering up. Press the Stop and Fast Forward buttons while powering up to display the number of hours the deck has been operated in the Shuttle mode.

Check the Oil: The DA-98 and DA-38 offer a block error rate function, which quantifies errors caused by tape dropouts or shedding, dirty heads, etc. Rather than merely depending on the PB Condition LED, the block error rate displays whether block errors are within acceptable limits. This also provides instantaneous user feedback on which brands of tape provide optimal performance.

Meter Magic: To turn off the DA-88's peak hold function, push the Rewind, Play and Record buttons while the deck is powered up. To return to peak hold metering, push the Rewind, Stop and Record buttons while the deck is powered up. Then Press the Up arrow and Clear button. The deck will return to normal (peak hold) metering.

Reset Me Up, Scotty: If you're using someone else's machine and are unsure of how many functions (track delay/dither/offsets/crossfades/etc.) are enabled, you can always return the DA-38 to its default factory parameters by pressing the shift key, and then pushing the Menu button until "init" appears on the display. Now press either the arrow Up or Down key, which will bring up "rEADy." Another press of either the arrow Up or arrow Down key and the DA-38 is re-initialized to its factory settings.

The Beginning of the End: If you'd like your recorder to go into Play automatically after rewinding a tape, then press Rewind, Fast Forward and Play during power up. To return to "normal" operation (the recorder goes into Stop when a tape is rewound), simply hold the Fast Forward and Play buttons on power-up.

If you want your DA-88 to automatically rewind when the tape is finished, hold the Rewind, Stop and Play buttons while powering-up. To return to "normal" operation (the tape stops at the end), hold the Rewind and Stop keys while powering-up.

In the studio, I want my decks to stop after rewinding or reaching the end of the tape. Why use the other modes? One use for automatic playback operations is special venue or theme park applications, where an unattended DA-88 could play eight channels of sound effects for nearly two hours and then restart itself after a quick auto-rewind. Who says DA-88s are strictly studio tools? ■

BY GEORGE PETERSEN

SEE US AT NAB SANDS BOOTH #M8138

INTRODUCING THE MACKIE D8·B. DIGITAL MIXING DEFINED.

Proudly made in Woodinville USA by certified Mackids

The most powerful, intuitive, creative digital console ever offered at any price. Twenty-four-bit definition. The superb sound quality and intuitive interface that Mackie's famous for. Expandable with cards and software plug-ins. The Digital 8•Bus. Well worth the wait.

MACKIE®

VOCAL STUDIO

Woodinville, WA, USA
Phone 800/898-3211
www.mackie.com

CLE #187 ON PRODUCT INFO CARD