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TASCAM SX1

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LEXICON MPX 200

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[illegible] his techniques
[illegible]ty of genres

xxxx

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"The 'Golden Ears' all found the TASCAM performed extremely well, nearly beating out a unit priced four times higher. The listening tests confirmed what I already knew: the MX-2424 is a solid performer at a great price."

- Glen O'Hara,
Pro Audio Review Magazine

"...the MX-2424 puts high-resolution sound quality and professional recording features at your fingertips."

- Electronic Musician Magazine,
2001 Editor's Choice Award

"...the TASCAM MX-2424 is a rock-solid, excellent studio recorder that performs well, sounds great and is priced right."

- George Petersen,
Mix Magazine

"The machine alone is impressive enough to warrant close attention, but the implications inherent in the control and networking capabilities make it potentially astounding."

- Rob James,
Studio Sound Magazine

You probably machines in is the What you advantages multitracks, transition just getting understand

MX-2424 24-TRACK 24-BIT HARD DISK RECORDER/EDITOR

* based on an average 3 1/2 minute song of 24 tracks at 24-bit/48kHz. Your mileage may vary.

† Offline CD-R backup is possible with an Ethernet-equipped computer. The $749 (USD) reference is based on TASCAM's CDR-Pro Bundle.

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World Radio History

know that with thousands and thousands of use around the world, the TASCAM MX-2424 most popular 24-track recorder ever made. might not know is that the MX-2424 offers huge that aren't available on other standalone hard disk regardless of price. Whether you're making the from analog and tape-based digital recorders or into recording, here's some info to help you truly the MX-2424 advantage.

Ph.D. in Nuclear Physics Not Required

If you've ever recorded before, you'll find the MX-2424 as easy to use as any multitrack recorder. Flip the Power switch, arm a track and hit the Record and Play buttons. Voila...you're tracking to its internal hard disk. Since TASCAM has been the world leader in multitrack recording for over 25 years, we know how to create gear that's powerful and sophisticated without making the learning curve too steep.

Edit How *You* Like: MX-View™ Waveform Graphic Interface and Extensive Front Panel Editing

One of the main reasons to get into hard disk recording is the incredible editing power versus tape. Running in native Mac and PC versions and connected via a fast 100Mb Ethernet interface to your computer, the upcoming MX-View is a powerful graphic editing interface that offers sophisticated, sample-level editing on par with full-featured digital audio workstations. You can drag and drop on the fly, get onscreen metering for up to six MX-2424s, set up custom configurable keyboard shortcuts, manage virtual tracks and much more. If you want to use the MX-2424 in the field, its extensive built-in front panel editing tools let you edit without lugging around a keyboard, monitor and mouse.

True Recording Power: Take the Punch-In Challenge

24-track, 24-bit digital audio requires a powerful hard disk recording engine. The MX-2424 is so strong that it allows for seamless, gapless punches across 24 tracks, with up to 72 tracks of throughput to accomplish this considerable task. If you're brave, try arming 24 tracks on any other standalone 24-track hard disk recorder and quickly punching in and out. It's just one example of the MX-2424's awesome dual-processor recording power and extremely fast SCSI bus. You can choose between TapeMode and Non Destructive recording, and access up to 999 virtual tracks per project with 100 locate points, 100 levels of Undo and much more.

Sound Designer II, Broadcast Wave Files and SCSI Drives for Ultra Flexible Compatibility

TASCAM understands the reality that you may need to interface your audio with other pieces of equipment. Since the MX-2424 writes Sound Designer II™ audio files to Mac-formatted disks and Broadcast Wave audio files to PC disks, it's easy to move sound back and forth between your computer and the MX-2424. With these standard time-stamped file types and professional SCSI drives, you're ensured sample-accurate compatibility with Pro Tools™, Nuendo™, Digital Performer™ and more. With compatibility being so important to MX-2424 owners, it's no surprise that its 24-channel interfaces are ready to connect to just about any console, digital or analog. Or that its analog, TDIF and AES/EBU interface modules are 96kHz ready.

Back Up Your Tracks: As Low As A Buck Per Song

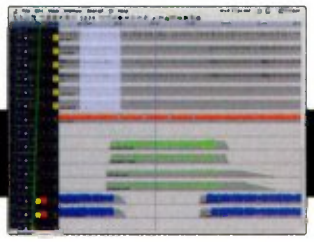
Media	Cost of Drive	Media/10 Projects	Total Cost
90 Minute IDE Drive	$299	10 Drives	$2990
Orb Drive	$299	1 Drive + 86 Disks	$2879
TASCAM DVD-RAM	$599	1 Drive + 20 Disks	$1739
Offline CD-R Backup*	$149	1 Drive + 90 Disks	$959

If you're forced to use cheap disk drives to backup, you'll pay in the long run. DVD-RAM drives may be connected to the MX-2424's front panel or rear SCSI port, and offline CD-R backup via Ethernet transfer to your computer is the most cost-effective backup method available on any HD recorder by far.

Hard disks are great for recording...but not so great for archiving and transferring audio. That's why the MX-2424 gives you choices like 9.4GB DVD-RAM discs for your backup solution. Or simply transfer your audio to your computer and backup to CD-ROM for as low as one dollar for an average pop tune*.

Get the Advantage of the Most Powerful and Most Affordable 24-Track Hard Disk Recorder Available Today

There's much more to the MX-2424 than what fits on this page, like its award-winning sound quality, professional built-in synchronization tools and TASCAM's amazing online support forums. So if you're getting into the hard disk revolution, you might as well take advantage of the recorder with all the advantages. Just go to www.mx2424.com for the complete MX-2424 story, or check out the MX-2424 for yourself at any TASCAM dealer.



Available soon, the new MX-View graphic editing software offers DAW-style waveform editing power, drag-and-drop editing on the fly, control of up to six MX-2424s with metering and much more.

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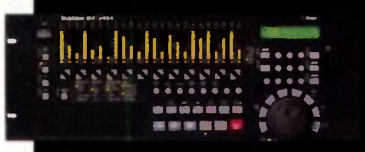

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World Radio History

VOLUME 12 • ISSUE 5

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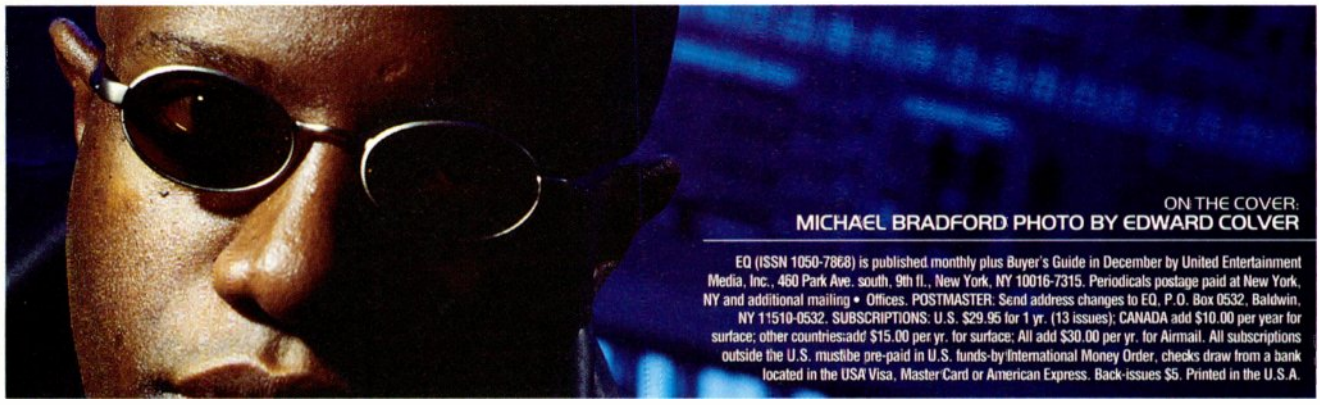

ON THE COVER:
MICHAEL BRADFORD PHOTO BY EDWARD COLVER

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EDITORIAL

The Ever-Changing World of *EQ*

Check out the masthead to the right of this editorial; there's been some activity over there recently. As I mentioned a few months ago, Adam Cohen joined us as *EQ*'s new Associate Publisher. And, last month you may have noticed that Howard Massey made the move from Associate Editor to East Coast Editor, a title that more aptly reflects his position as the magazine's contact for studio and producer/engineer activity here on the Atlantic side of the continent.

This month, Lisa Roy joins us as *EQ*'s new West Coast Editor. Like Howard, Lisa's directive is to seek out the newest and coolest studios, sessions, engineers, producers, and projects over on the Pacific side of the country. Lisa has been contributing to *EQ* for quite some time now; a recent example of her work is the controversial November 2000 cover story on Marilyn Manson and Dave Sardy. You may also have noticed the first installment of her monthly feature, "Session File," which debuted last month with Dave Matthews, and this month features Rodney Jerkin's work with Destiny's Child. Lisa's done her time in the industry, serving as a studio manager in Nashville and Los Angeles, and recently working as a freelance journalist and industry consultant.

Two other changes from last issue: I'm happy to announce the addition of Britt Strickland as Associate Editor of *EQ*. Britt's a bass player (but we'll forgive him for that) and vocalist who's paid his dues recording multiple CDs for his Americana-tinged rock band. In a major coup, we've stolen him away from *EQ*'s sibling, the Music Player Network, where he was serving as an online editor.

Lastly, on the personnel front, Russ Mikowski (a.k.a. DJ Russ Reign) has been promoted from Assistant Editor to Associate Editor. In addition to being one of New York's premier club DJ's, Russ is a sought-after remixer and producer, as well as the Editor of *EQ*'s bi-monthly Extreme Groove supplement for professional DJs.

Finally, I'm proud to announce that this issue features the much-anticipated return of *EQ* Live to the stable of regular *EQ* components. The area of live sound is of vital importance to many of you. For that reason, we're treating *EQ* Live as its own entity - a magazine within the magazine, if you will – allowing it the same dedicated focus that we give to recording topics in *EQ* itself. Check it out and let me know what you think.

– Mitch Gallagher
mgallagher@uemedia.com

EQ

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"REASONS NOT TO BUY A MACKIE D8B...ZERO."

—Roger Nichols, EQ Magazine

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- **3rd-party plug-ins** via our new UFX card. Up to 16 simultaneous plug-ins on the first 48 channels, pre or post DSP, pre-fader via up to 4 UFX cards. Each plug-in is available twice — once when tracking, and again at mixdown!
- **Multiple Undo List** — 999 levels!
- New **Snapshot libraries.**
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- **Updated GUI** including 48-channel fader bank view screen.
- **Time Offset** (delay) adds a delay of up to 255 samples to the signal at the pre-DSP (dynamics / EQ) point in the signal path.
- **New surround capabilities** including depth-of-center control (LCR mixing with divergence), multiple surround panner window, individual LFE channel level control.
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3 1999 TEC AWARD WINNER!

Normally we don't name competitors in our ads. But in this case, Mix Magazine published the other nominees for the 1999 TEC Award for Outstanding Technical Achievement in Small Format Consoles: Allen & Heath's GS-3000, Digidesign's ProControl, Panasonic's WR-DA7, Spirit's Digital 328 and Yamaha's 01V. Thanks to all who helped us win this prestigious award.

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"PLEASE, STOP TAKING CREDIT AWAY FROM THE STREET AND THE URBAN YOUTH. THEY'VE CREATED TOO MUCH OF THE SOUND, TEXTURE, AND CONCEPTS FOR WHAT MUSIC HAS BECOME TODAY."

–ARTIE REYNOLDS, VIA INTERNET

GREAT COMMUNICATOR

Nice interview with Gus Dudgeon [March 2001]. He was able to clearly communicate some techniques that could help a lot of people, myself included. How refreshing!

Colors Audio
via Internet

LOUD ≠ GOOD

Santana's latest CD may have been successful, and the original recording excellent as reflected in your interview with Steve Fontano [February 2001], but only someone who thinks MP3s sound the same as CDs could think this CD sounded good. It was mashed to almost no dynamic range with all the resulting distortions. That's called loud — not good. I think it is irresponsible to hold this up as an example of good CD production, no matter how profitable it was.

James Murphree
via Internet

PUFFY IS NOT GUILTY

I'm writing in response to the pop music article in the December 2000 issue. In writing about the rise of the status and function of those labeled "producer," much of what was stated was right on — with a few exceptions. Tim Kelley states, "Let's be honest: Puffy Combs kind of came in and changed the game with all those samples. That's really what messed up the whole musicianship thing — when he took a sample and just looped it." This is a perfect example of how musical ignorance spreads. People should know what they're talking about before they comment like that. If you don't know, ask somebody.

As far as musicianship goes, I have just two words: rap music. Remember, these young black street talents weren't musicians — they would spin the records and have others rap over them. It was their sound. Grand Master Flash, Furious Five, The Sugar Hill Gang — they would use the old pre-recorded records as their backgrounds and sometimes have musicians re-record the records they wanted to use! As technology caught up to these young pioneers, the use of samples grew, but the concept was theirs.

Now, it's a lack of musicianship, yes, but what about the use of drum machines? This concept came about due to technology and budget. You didn't need to pay a drummer. Electronic drums became "the sound" simply because they were used. The same goes for all MIDI concepts! I am a bass player, and remember losing session work like crazy because everyone was using keyboard bass. It became the sound because everyone was doing it simply because you could manipulate it with MIDI and not hire a bass player.

All of this happened while Puffy Combs was still in elementary school eating lunch. Please, stop blaming hip-hop or rap artists and producers for everything you may feel is negative. Don't think something just started when you found out about it. Hip-hoppers and DJs often knew more about recorded music than musicians! There *is* an art form to how samples and pre-recorded, as well as re-recorded, music is used for that genre. Please, stop taking credit away from the street and the urban youth. They've created too much of the sound, texture, and concepts for what music has become today.

Embrace it and educate yourself.

Artie Reynolds
via Internet

DUDE, WHERE'S YOUR CAR

I regularly read and enjoy Al Kooper's column in *EQ*, and I could not agree with him more regarding his comments in the December 2000 issue that, as a songwriter, he's one of the many who stand to be hurt financially by sites like Napster, which do not pay royalties for the use of music.

I'm in the unique position of being not only a songwriter and record producer, but also a music business educator at Queensborough College, in Bayside, NY. I see firsthand how difficult it is to convince young students, studying music business no less, that taking intellectual property without asking, whether it be via sampling or downloading prerecorded music, is theft.

My latest tactic, which seems to get the point across best, is to ask one of my students to give me the keys to his/her car. At first they are incredulous, then they ask why. I respond that I want to use it and claim "fair use." It's out there in the lot, so I should be able to use it as I see fit.

When they cry, "But that's my property," I then respond, "Exactly, just the way a song is someone's property." If I am not entitled to use your house, car, or guitar without your permission, why should I be allowed to use your song without permission?

The marvelous technology that has made it better for all creative artists has also fostered a form of disrespect for the intellectual property rights of others. The Napster/Internet debate is not just an "us versus the big guys issue," but also an intellectual property issue.

It is crucial that the whole story be told and that young (and old) users of the Internet be conditioned to respond to song theft the same way they would respond to having their lunch money taken from them.

Robert Porembski
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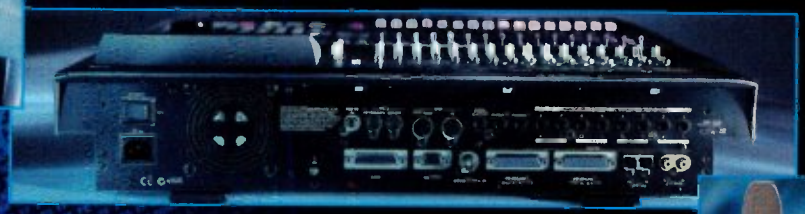

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Right Brain

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What were we thinking when we created the new VS-2480? It's pretty obvious. Only the best of the best workstations ever. With 24 tracks to give you all the room you need to take your music anywhere it wants to go, without having to build a studio to get it. And drag-and-drop mouse editing on the LCD to make operation easy and intuitive. Check it out for yourself. Because once you get your hands on it, you'll only have one thing on your mind.

VS-2480 24-track Digital Studio Workstation Roland

DEMO VIDEO AVAILABLE **Call (800) 386-7575 for the VS-2480 demo video ($5.00) Roland Corporation U.S., (323) 890-3700 www.rolandus.com**

FaxBack Information: (323) 890-3780 (Doc.#10522). Specifications and appearance are subject to change without notice.

CIRCLE 75 ON FREE INFO CARD

World Radio History

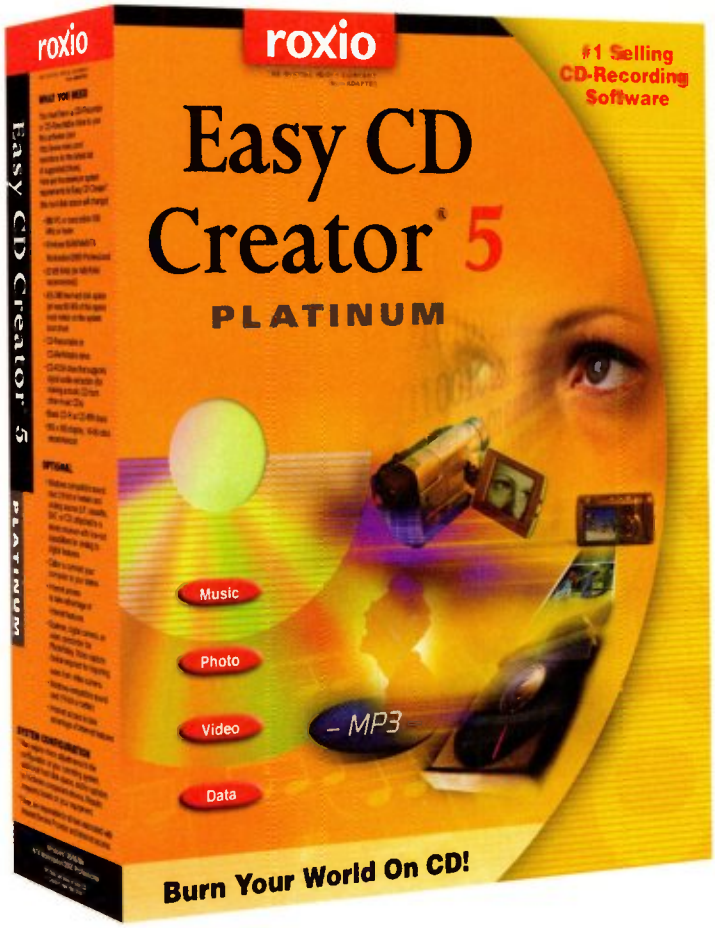
THE PRODUCT: Logic 3SC
THE BASICS: Networkable 5.1 audio postproduction system
THE DETAILS: New from the techno-boffins at AMS Neve, the Logic 3SC postproduction workstation provides high-speed editing and mixing functions. It features menu-free mixing, giving all the channels outputs and automation needed to deliver complex mixes quickly and efficiently. New editing tools include DSP ToolBox, which is a range of advanced DSP plug-ins. Full 5.1 support is built in, and the Logic 3SC can also be networked with other WorkFlow-equipped Neve products.
CONTACT: AMS Neve at 818-753-8789 or visit **www.ams-neve.com**. Circle *EQ* free lit. #101.

THE PRODUCT: Audix ADX-20i
THE BASICS: Mini condenser mic
THE DETAILS: Need to mic a sax or other brass instrument? The ADX-20i's high-tension spring clamp keeps it in place even when the horn players are jumpin'. With a frequency range of 40–20,000 Hz, the mic delivers a warm, rich sound not typical of microphones this size. Operating on phantom power with the provided preamp module, it can also be used in battery mode with an optional power supply.
CONTACT: Audix at 800-966-8261 or visit **www.audixusa.com**. Circle *EQ* free lit. #102.

THE PRODUCT: ASC Equalizer
THE BASICS: Single-channel parametric equalizer
THE DETAILS: The Speck Model ASC is a compact four-band equalizer that has 12 controls for equalization adjustment, covering the entire audio spectrum from 20 Hz all the way up to 25 kHz. Features include active-balanced and transformer-balanced outputs, an unusually high headroom of +28 dBu, both XLR and TRS connectors, and a 12 dB/6 dB front-panel gain control that handles level variations when patching between balanced and unbalanced gear.
CONTACT: Speck at 760-723-4281 or visit **www.speck.com**. Circle *EQ* free lit. #103.

THE PRODUCT: HitPlayer
THE BASICS: Networkable digital audio player
THE DETAILS: Optimized for use with background music, public address, entertainment sound, and interactive audio systems, Digigram's HitPlayer provides a cost-effective, easy-to-use solution for providing and controlling streamed or locally stored MP3 or MPEG Layer II audio at multiple remote locations. Remotely controlled via TCP or RS-232, HitPlayer utilizes FTP, HTTP, SMTP, SNMP, Telnet, PPP, and NetCom services for network connection, configuration, and event notification.
CONTACT: Digigram at 703-875-9100 or visit **www.digigram.com**. Circle *EQ* free lit. #104.

THE PRODUCT: Easy CD Creator 5 Platinum
THE BASICS: CD burning software
THE DETAILS: New from Roxio (an Adaptec company) is Easy CD Creator 5 Platinum, a software suite for Windows computers that lets you burn music, photo, video, and data CDs. New music features allow users to create compilation CDs from favorite songs and to add transitions and crossfades between tracks — there's even a ten-band equalizer, realizer, and normalizer. Also included is an MP3 encoder and CD Spin Doctor, which is an application that allows you to burn LPs to CD while removing those annoying scratches, hisses, and pops.
CONTACT: Roxio at 408-259-7694 or visit **www.roxio.com**. Circle *EQ* free lit. #105.



THE PRODUCT: Shure FP24
THE BASICS: Portable mixer
THE DETAILS: New from Shure, the FP24 two-channel mixer/preamplifier is ideal for field production applications. Features include transformer-balanced inputs, a built-in slate microphone, test tone oscillator, seven-segment LED output meters (viewable in direct sunlight), and headphone monitoring. With its impressive dynamic range of 110 dB and a bandwidth of 10–50,000 Hz, the FP24 can easily serve as the front end for even the most demanding digital recordings.
CONTACT: Shure at 847-866-2200 or visit **www.shure.com**. Circle *EQ* free lit. #106.

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DMX-R100
USER FORUM

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Howard Massey
Guest Forum by
Roger Nichols

www.dmxr100forum.com

PRODUCT VIEWS

THE PRODUCT: AudioQuest cables
THE BASICS: Audio and video cabling
THE DETAILS: AudioQuest presents a full line of innovative audio and video cabling, for all your professional and home theater needs. The product line includes G-String, a low-cost audio interconnect that uses solid long-grain copper conductors and symmetrical coax construction. FLX Series custom installation speaker cables (available in a paintable white PVC jacket labeled with sequential foot markers for easy inventory management) combine a fully shielded speaker cable and a three-conductor, 24-gauge control wire, eliminating the need to run separate infrared/keypad and speaker cable to the same location. The VSD line of multi-purpose 75-ohm cables is designed to carry composite video signal from a satellite dish, CATV, and HDTV, as well as S/PDIF audio.
CONTACT: AudioQuest at 949-585-0111 or visit **www.audioquest.com**. Circle *EQ* free lit. #107.

THE PRODUCT: MBNM 608
THE BASICS: "Lollipop" condenser microphone
THE DETAILS: Cherry, lemon, or lime? This new microphone from German manufacturer MBHO is designed to take a licking and keep on ticking. Features include a large-diaphragm design with selectable omni, cardioid, and figure-of-eight polar patterns in a vintage capsule design. The claimed frequency response is an impressive 5–20,000 Hz, with a maximum SPL of 133 dB.
CONTACT: MBHO US at 718-963-2777 or visit **www.mbho.de**. Circle *EQ* free lit. #108.

World Radio History

THE PRODUCT: SurgeX SX1115 Series
THE BASICS: Power conditioners
THE DETAILS: These three new models from SurgeX will protect all your audio, video, and computer equipment from all kinds of nasties coming down the power lines. All three offer eight standard grounded AC receptacles on the rear panel, and all utilize patented Series Mode Pro surge suppression, said to be superior to conventional MOV circuitry.
CONTACT: SurgeX at 215-862-9344 or visit **www.surgex.com**. Circle *EQ* free lit. #109.

THE PRODUCT: Pulsar XTC
THE BASICS: DSP card and VST plug-in suite
THE DETAILS: If you're using VST-compatible software, you'll want to check out the new Pulsar XTC PCI card from Creamware, which includes the power of six 32-bit SHARC DSPs, along with an extensive software package with effects and virtual instruments. If required, the Pulsar XTC can be expanded with audio inputs and outputs, so that no additional sound card is required.
CONTACT: Creamware at 604-435-0540 or visit **www.creamware.com**. Circle *EQ* free lit. #110.

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If you can hear the unique qualities of the best mic preamps, compare your favorite to an MSS-10 and you will hear a big difference.

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CIRCLE 21 ON FREE INFO CARD

World Radio History

RECORD! EDIT! CREATE!

Plug in the HDR24/96 Recorder/Editor and start recording. No computer to boot up. No hardware and software configuration nightmares. No compromises like settling for 20-bit audio or just eight tracks at a time.

Recording's easy with the HDR24/96.

Simultaneously record twenty-four tracks of 24-bit digital audio...without waiting for lock-up, tape shuttle or CPU lag. Drop up to 192 alternate takes into "virtual tracks." Record onto affordable, removable media that you can swap in and out for each project.

And do it all with your hands on a familiar, analog-style machine (or choose from two sizes of wired remotes) instead of resorting to myriad mouse clicks. All basic functions are right on the HDR24/96 front panel including transport buttons and a Record Enable button for each track.

Editing is easy with the HDR24/96.

Plug in an SVGA monitor, keyboard and mouse, choose from 2x, 4x, 8x, 12x or 24-track views and then watch them scroll smoothly past a centerline.

Mark hundreds of cue points and four locate points for looping and auto-punch-in modes.

Use the mouse to "scrub" individual tracks, Cue, Punch and Loop points with continuously variable velocity.

You can mark a segment (or multiple non-adjacent segments) as a *region* and then cut, copy and paste it anywhere — onto a blank track or right in the middle of an existing track without erasing anything (the part of the track after the insert just "slides down").

You can audition regions or modify their start/end points instantly, capture them as "sound elements" for later use or quantize them to user-defined time grids.

Create fade-ins, fade-outs and cross-fades just by dragging and dropping them ...and then set their length by dragging the mouse.

Add volume envelopes for simple level automation of regions or whole tracks.

Then use Render Track to combine all or selected regions of a track just as you hear it complete with cross-fades, volume envelopes, mutes, etc.

Play with the HDR24/96.

Play back twenty-four tracks of pristine digital audio —instantly without any pause or lag time. It will be synched rock-solidly to everything in your studio — from MIDI-based sequencers to VTRs (via SMPTE or video sync).

If only life had 999 levels of undo. HDR24/96's History list lets you take loads of creative chances.

Then let your partners, clients and friends "play" with your tracks anywhere in the world, thanks to the HDR24/96's Ethernet port and FTP server capability.

The non-linear HDR24/96 vs. linear hard disk recorders.

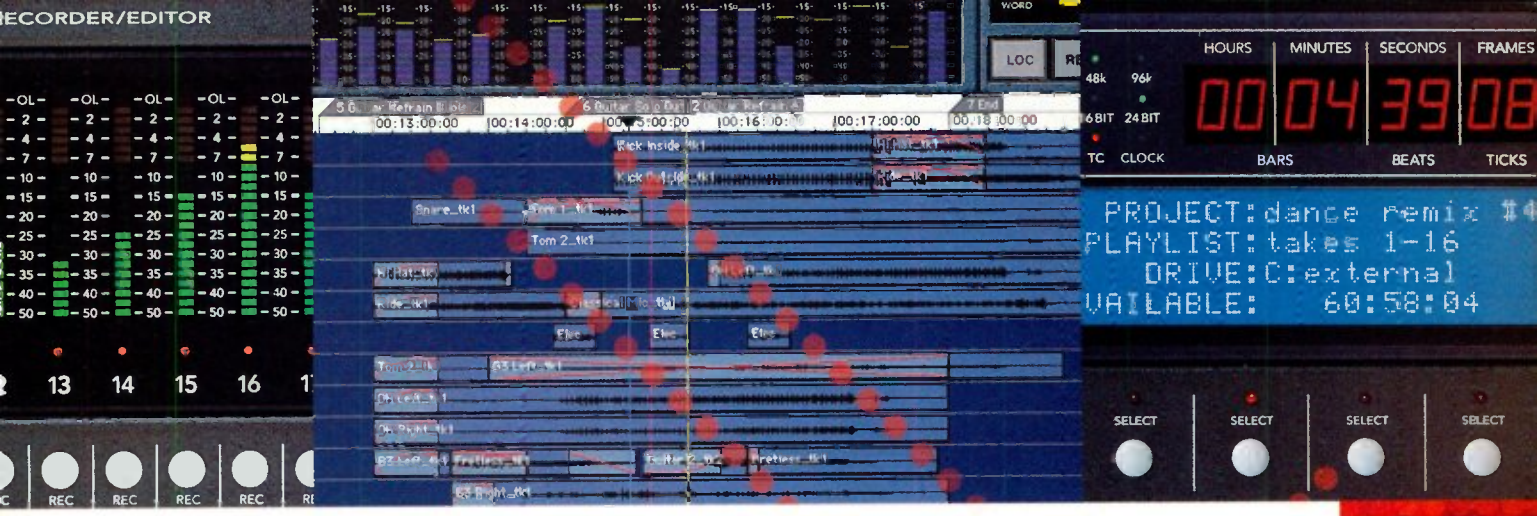
Ever since the invention of magnetic tape, recording over something means it's

"...the HDR24/96 is a stunning development with excellent sonic quality, an extensive feature set and versatile file management... it's easy to use and priced right. This one rocks!"

George Petersen
Mix Magazine March 2001

Based on average length of current pop songs using 24 tracks @48kHz/24-bits and a liberal number of extra regions and virtual tracks. Does not apply to extended trance remixes. ©2001 Mackie Designs Inc. All Rights Reserved. Mackie and the Running Man figure are registered trademarks of Mackie Designs Inc. MackieMedia is a trademark of MacLic Designs, Inc. ORB is a trademark of Castlewood Systems.

World Radio History



SAVE YOUR COMPUTER FOR E-MAIL.

Need to back up just one song? Plug a Mackie Media Project drive into the HDR24/96 external bay and transfer over 2GB to an ORB™ disk.

gone…which makes doing "punch-ins" a dicey gamble. This is called *linear* (destructive) recording. Even some current hard disk recorders use this old-fashioned technology!

The HD24/96 employs true, non-destructive, *non-linear* recording and editing. That means you can record as many versions of a track or track segment as you want without destroying the original. During playback, the recorder recombines the non-linear segments into a seamless soundstream.

Professional remote for a very professional hard disk recorder. Our new Remote 48 lets you run two HDR24/96s – 48 tracks of total control including a weighted jog/shuttle wheel and full display!

And unlike linear-style recorders that treat disk space like digital tape, the HDR24/96 doesn't automatically eat up 24 tracks of disk space when you're just recording one or two tracks. Because it uses only the space needed for actual audio, you get far more recording time per gigabyte of hard disk space.

Professional performance *and* affordable creativity with the HDR24/96.

Non-linear hard disk recording *is* possible to do with a computer-based system. But to achieve what the HDR24/96 delivers – simultaneous, lag-free 24-track/24-bit recording and playback and waveform accurate editing – requires major investment in a *very* expensive digital audio workstation system. Cheap "recorders-on-a-computer card" just don't have the horsepower for multi-track, twenty-four-bit 48kHz recording, much less *twelve-channel 96kHz capability* like the HDR24/96.

Listen to somebody else instead of us.

Here's what *Mix* magazine had to say about the HDR24/96:

"…The HDR24/96 is a stunning development with excellent sonic quality…The unit offers an ease of use that should make disk-recording novices comfortable while including an impressive feature set that will appeal to seasoned pros.

"The recorder's faceplate holds few mysteries and most users can be up and recording just minutes after unpacking the HDR24/96."

According to Britain's ***Audio Media***, *"As a recorder (the HDR24/96) is transparent. As a tool, it's powerful. As a creative helper it's perfect. With focus on functional, inexpensive, simple-to-use 24-track recording, Mackie has hit the mark."*

Get a demo at a Mackie dealer.

There are a bewildering array of digital recording options on the market right now. You've heard our two cents worth.

We honestly believe that we've created the best of two worlds: the best standalone non-linear digital recorder, and an extremely robust editing system with ultra-functional graphic user interface. And we've done it without making you enter the *really* cruel world of computer interface compatibility problems.

Twenty-four track masters for under ten bucks each!! Divide the cost of a MackieMedia M90 into the 20+ pop tunes you can record on it and you're looking at under a ten-spot for each 24-track master. Remember, non-linear hard drives store audio data only, not silence. Tape (and linear hard disk recorders) just roll merrily along…eating oxide and costing money.*

Call toll-free or visit our web site (using that computer you won't need to tie up) for more info.

Then get your hands on an HDR24/96 and track some hits.

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CIRCLE 48 ON FREE INFO CARD

World Radio History

Audio-Technica AT3035

By Steve La Cerra

Since the introduction of their AT4033 condenser microphone ten years ago, Audio-Technica has produced a well-received line of high-quality studio transducers, including the AT4050, AT4060, and AT4047/SV condenser mics. Adding to that established family, Audio-Technica is now introducing their new AT3035 cardioid condenser microphone. Developed by the same team of engineers responsible for their famed 40-Series microphones, the AT3035 draws on the design and manufacturing experience gained from that series. A large-diaphragm mic with fresh-from-the-ground-up construction, the AT3035 represents the first in Audio-Technica's next generation of the popular 30-Series microphones. The AT3035 is intended to provide high-quality sound reproduction with rugged construction and versatility, at a modest price.

The AT3035 is a true large-diaphragm condenser mic that employs a 26-mm diameter, two-micron thick, vapor-deposited, gold diaphragm. Sensitivity of the AT3035 is spec'd at –32 dB, a figure comparable to that of 40-Series microphones.

Intended for use in a variety of recording situations, the AT3035 has a fixed cardioid polar pattern and a frequency range from 20 to 20,000 Hz. The frequency response of the AT3035 has been tailored for a smooth, natural sound with an emphasis on accuracy — making it a good complement to digital recording formats. A –10 dB pad switch is provided on the mic body, enabling it to handle sound pressure levels up to 158 dB. With the pad switched off, the mic can handle a sound pressure level of 148 dB — so loud guitar amps won't be a problem for the AT3035. The AT3035 has a low self-noise spec of 12 dB SPL, making it sensitive enough for recording instruments with low acoustic output.

A low-frequency roll-off switch is provided on the AT3035 to reduce the microphone's sensitivity to popping "P's" when used close-up for vocal applications. The roll-off also serves to reduce pickup of low-frequency ambient noise or mechanically transmitted vibrations such as might occur from traffic rumbling outside the studio or heating and air conditioning systems within a studio. Further isolation from mechanically borne noise is ensured by the AT3035's newly engineered shock mount, which is a standard accessory included with the mic.

Under the surface, the AT3035 features Audio-Technica's exclusive engineering and manufacturing technology, which provides high-reliability and sonic consistency from microphone to microphone, enabling two AT3035's to be effectively used as a pair. The AT3035 can be phantom powered using any supply capable of delivering from 11 to 52 volts DC. ■

AUDIO-TECHNICA AT3035

WHAT IS IT? A low-noise cardioid condenser microphone intended for demanding studio applications.

WHO NEEDS IT? Anyone requiring quality audio reproduction without breaking the bank.

WHY IS IT A BIG DEAL? The AT3035 incorporates many of the design advantages utilized in the manufacture of Audio-Technica's well established 40-Series microphones, yet at a more modest price.

SHIPPING: Now

SUGGESTED RETAIL PRICE: $349, including shock mount.

CONTACT: For more information, contact Audio-Technica at 330-686-2600 or visit www.audio-technica.com. *EQ* free lit #111.

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CIRCLE 42 ON FREE INFO CARD

TASCAM SX-1

By Steve La Cerra

At the spring 2001 AES Convention, TASCAM introduced their new SX-1 integrated audio production station. Combining a hard disk recorder with an automated digital mixer, MIDI sequencer, DSP plug-in effects, and multi-format mastering capabilities, the SX-1 is intended for use in project, pro recording, and post-production studios requiring a self-contained digital audio and MIDI production system.

The SX-1 is housed in a desktop console containing a 40x8 digital mixer with touch-sensitive, 100-mm faders. Each of the 16 input channels has balanced 1/4-inch TRS line- and phantom-powered XLR mic inputs with input gain control, plus 1/4-inch analog TRS insert jacks. Standard onboard effects include DSP plug-ins developed by TASCAM, TC Works, and Antares — new plug-ins may be added later by the user as required. Studio and control room monitoring is independent, and includes the ability to switch multiple pairs of control room monitors.

Digital interfacing to the SX-1 is via eight-channel ADAT optical I/O as well as via two stereo S/PDIF I/Os with sample rate conversion. Built into the SX-1 are three expansion slots for adding up to 24 channels of digital I/O. Optional multichannel cards are available for AES/EBU, TDIF, ADAT optical, or additional analog I/O.

Sixteen tracks of 48 kHz, 24-bit audio may be recorded to an internal IDE drive included with the unit. Additional IDE and SCSI drives may be connected to the SX-1 using a front-panel slot or rear-panel SCSI interface. A built-in CD-RW drive facilitates recording of mixes, data backup and archival, or importing audio and data from CD. Along with standard transport controls, the SX-1's recorder section includes a jog/shuttle wheel for simultaneous scrubbing of audio and MIDI data.

The SX-1 also contains a 128-track MIDI sequencer with real-time and step-record modes. Two rear-panel MIDI inputs are provided for discrete input of controller data and MIDI timecode. Four MIDI outputs can be independently addressed from the SX-1's channel faders and knobs for 64-channel control over external MIDI devices.

TASCAM's designers have employed an efficient BeOS operating system in the SX-1. Optimized for multimedia use, this OS allows integrated editing of MIDI data and audio waveforms, as well as automation data editing.

Complete surround mixing capabilities are engineered into the SX-1, with the ability to record a 5.1 mix to the internal hard drive, in addition to the original 16 audio tracks.

Other standard features of the SX-1 include an onboard LCD screen that displays a variety of editing and automation information, as well as an S-VGA output that acts as a stand-alone DAW interface for total control of the machine without the need for an external computer. Interfacing includes word clock I/O, two USB ports, a 100-Mbit Ethernet port, and Sony 9-pin connector. The SX-1 supports SMPTE timecode sync and may be cascaded with TASCAM's DM-24 digital mixer to increase the number of available input channels and interfaces. ■

TASCAM SX-1

WHAT IS IT? A digital production system with integrated digital mixer, hard disk recorder, and MIDI sequencer.

WHO NEEDS IT? Anyone who wants a self-contained digital production environment that doesn't require an external computer.

WHY IS IT A BIG DEAL? In addition to negating the need for a computer, the SX-1 integrates extensive MIDI sequencing with hard disk recording and digital mixing.

SHIPPING: Now

SUGGESTED RETAIL PRICE: $8,999

CONTACT: For more information, contact TASCAM at 323-726-0303 or visit **www.tascam.com**. *EQ* free lit. #112.

World Radio History

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After nearly 30 years, I still love working at Ashly – a company that still cares where people actually use the tools we produce and takes product concept and quality very seriously. A company that, year after year, grows steadily – strengthening the foundation for all of our people – customers and employees alike.

Thanks.

Bill Thompson
President, Ashly Audio, Inc.

(and just for the record, we think the Redwood trees in the picture are the perfect metaphor for Ashly...)

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CIRCLE 83 ON FREE INFO CARD

By Steve La Cerra

Lexicon MPX 200

Designed for stage or studio use, the new MPX 200 from Lexicon is a 24-bit, dual-channel effects processor in a single rackspace chassis. The MPX 200 employs Lexicon's proprietary Lexichip to perform ambiance, plate, chamber, and inverse reverb algorithms, plus a variety of other effects such as tremolo, chorus, flange, pitch-shift, rotary speaker, and delay. All of the MPX 200's 240 preset programs — plus the 64 user programs — are capable of simultaneously performing digital compression. Up to eight adjustable parameters (four effects and four compressor) are available in each program.

Front-panel controls are provided for Input Level, Program Load, Program Edit, Store, Adjust, Bypass, and Tempo Tap. The adjust-knob function varies depending on the unit's status. When "Load" is pressed, the Adjust knob scrolls through available programs; when "Edit" is pressed, the Adjust knob changes the value of edit parameters for the various algorithms such as "liveness," reverb time, chorus depth, rotary speed, mix, EQ, or pitch adjust. The Adjust knob is also used to vary threshold, attack/release times, and ratio for the MPX 200's compressor.

Rear-panel I/O is on two pairs of 1/4-inch TS jacks; using only the right input jack will feed audio to both the left and right engines. The inputs are high-impedance, with enough gain to directly accept signal from an electric guitar or other instrument. S/PDIF I/O is also provided, allowing the MPX 200 to interface directly with most digital consoles — and negating the need for unnecessary conversion between the analog and digital domains.

In addition to its "normal" single-effect mode, the MPX 200 operates in several dual modes. Note that, in any mode of operation, the MPX 200 still provides digital compression for both input channels, ahead of the effect. Dual stereo mode runs one effect on the MPX 200's "A" engine and a different effect on the "B" engine. In this mode, left and right inputs are fed to both engines — so any input signal gets both effects; output for both effects is in stereo. Cascade mode feeds the output of the "A" effect into the "B" effect, in stereo. Mono-split mode routes the left input to the "A" engine and the right input to the "B" engine. Each effect is generated in stereo and the two are mixed to the MPX 200's stereo outs. This mode is cool for routing two discrete sends from your console to the MPX 200's inputs and using them for different stereo effects. Dual-mono mode allows you to run the inputs as two discrete mono signal paths (useful when using the unit in an insert patch). Front-panel indicators display the routing configuration of the currently active program.

Additional features of the MPX 200 include a headphone output, input level meters, full MIDI implementation via MIDI in and out/thru ports, the ability to lock tempo-controlled delays and modulation rates to MIDI clock or tap tempo, and an internal power supply. ■

LEXICON MPX 200

WHAT IS IT? A true-stereo, 24-bit, dual-channel effects processor.

WHO NEEDS IT? Anyone requiring high-quality digital effects with the added ability to apply compression to the input signal.

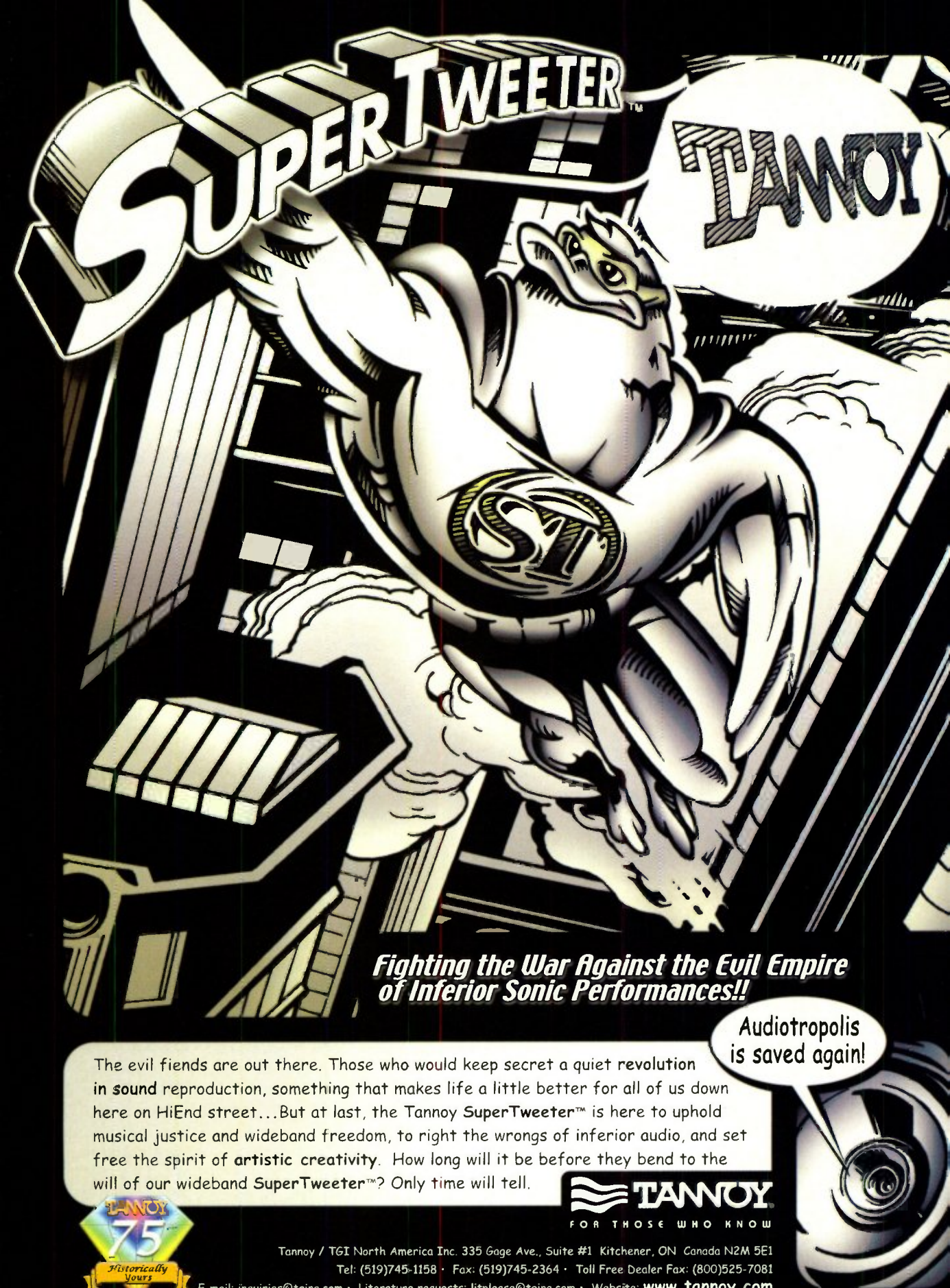
WHY IS IT A BIG DEAL? In addition to generating two stereo effects simultaneously, the MPX 200's input sensitivity is high enough to directly accept the output of a guitar.

SHIPPING: May 2001

SUGGESTED RETAIL PRICE: $399

CONTACT: For more information, contact Lexicon at 781-280-0300, or visit www.lexicon.com. EQ free lit. #113.

World Radio History



The evil fiends are out there. Those who would keep secret a quiet **revolution in sound** reproduction, something that makes life a little better for all of us down here on HiEnd street...But at last, the Tannoy **SuperTweeter**™ is here to uphold musical justice and wideband freedom, to right the wrongs of inferior audio, and set free the spirit of **artistic creativity**. How long will it be before they bend to the will of our wideband **SuperTweeter**™? Only time will tell.

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World Radio History
CIRCLE 49 ON FREE INFO CARD

Goodbye, NS10

Compiled By Lisa Roy and Anthony Savona

Ah, the Yamaha NS10 studio monitors — as common to studios as egotistical lead singers. Recently, Yamaha rocked the recording world with news that they're no longer going to produce the speakers. The announcement was received with mixed feelings; love 'em or hate 'em, everybody in this business has an opinion on the NS10's. Below are a few of those opinions — some obtained especially for this "Last Look" and some culled from the *EQ* archives — all from engineers touched by the NS10 in one way or another.

ED CHERNEY: "I used NS10's for a while, but haven't used them in years. When they came out they were great, but their time is way over."

CHRIS LORD ALGE: "The most popular console speaker in the world and [Yamaha is] going to stop making them? Well, they better get smart and start making some parts. Please, don't discontinue — re-continue. I've been sitting in front of the NS10's for 20 years — since the first pair came into the studio. But I'll have so many spare parts it won't matter to me."

AL SCHMITT: "I did [Natalie Cole's] *Unforgettable* on NS10's. My wife is an audiophile, and she rarely ever comes to the studio, but she came to this studio and she saw the NS10's and she just gave me a working over about how can you do this? [*Laughs.*] You've got $50,000 worth of musicians out there playing their hearts out and you're listening on this $300 crap, you know? [*Laughs.*] But it's just what you get used to."

TOBY WRIGHT (Alice In Chains): "It's all I use, I've used NS10's for 12 years. They're dead-on accurate — they sound like sh*t, but they're accurate. I never used the tissue over the tweeters, that's for fairies. I love them. I use them, and I would love to know where I could buy a truckload of components."

MICK GLOSSOP (Van Morrison, Queen): "You can get very good results using a pair of Yamaha NS10's. A tremendous number of producers and engineers work for maybe three-quarters of their major projects on NS10's."

MICK GUZAUSKI: "I thought the NS10's were a good tool and they made you do the right thing to your mix, but they weren't a lot of fun to listen to. Their low-frequency range was rolled off. They were really good speakers to judge balance on, but I don't feel they were really a good speaker to judge detail on or really hear deeply into a mix."

DAVID PENSADA (Brian McKnight, Diana Ross): "I usually listen to NS10's kind of medium and Auratones I listen at the same volume you would listen to TV. I found that on the NS10's, in order for them to really work, it's best to have them stay at one level for most of the mix. Then, near the end of the mix, check your levels and your EQ with the NS10's about 20 percent lower and again about 20 percent higher, and you'll make adjustments that you'll really be pleased with when you hear it on the radio."

JERRY FINN (Green Day, Rancid): "The NS10's are sort of a necessary evil. Most producers and bands that I work with are used to them, so that's what they want to hear."

ROB JACOBS (Don Henley, Alanis Morissette): "It's been about five years since I last used NS10's. They were a little fatiguing to listen to all the time and I just wanted to hear a little bit more bottom end. I think it's kinda cool they're being discontinued. It'll probably change the sound of records." ■

5.1

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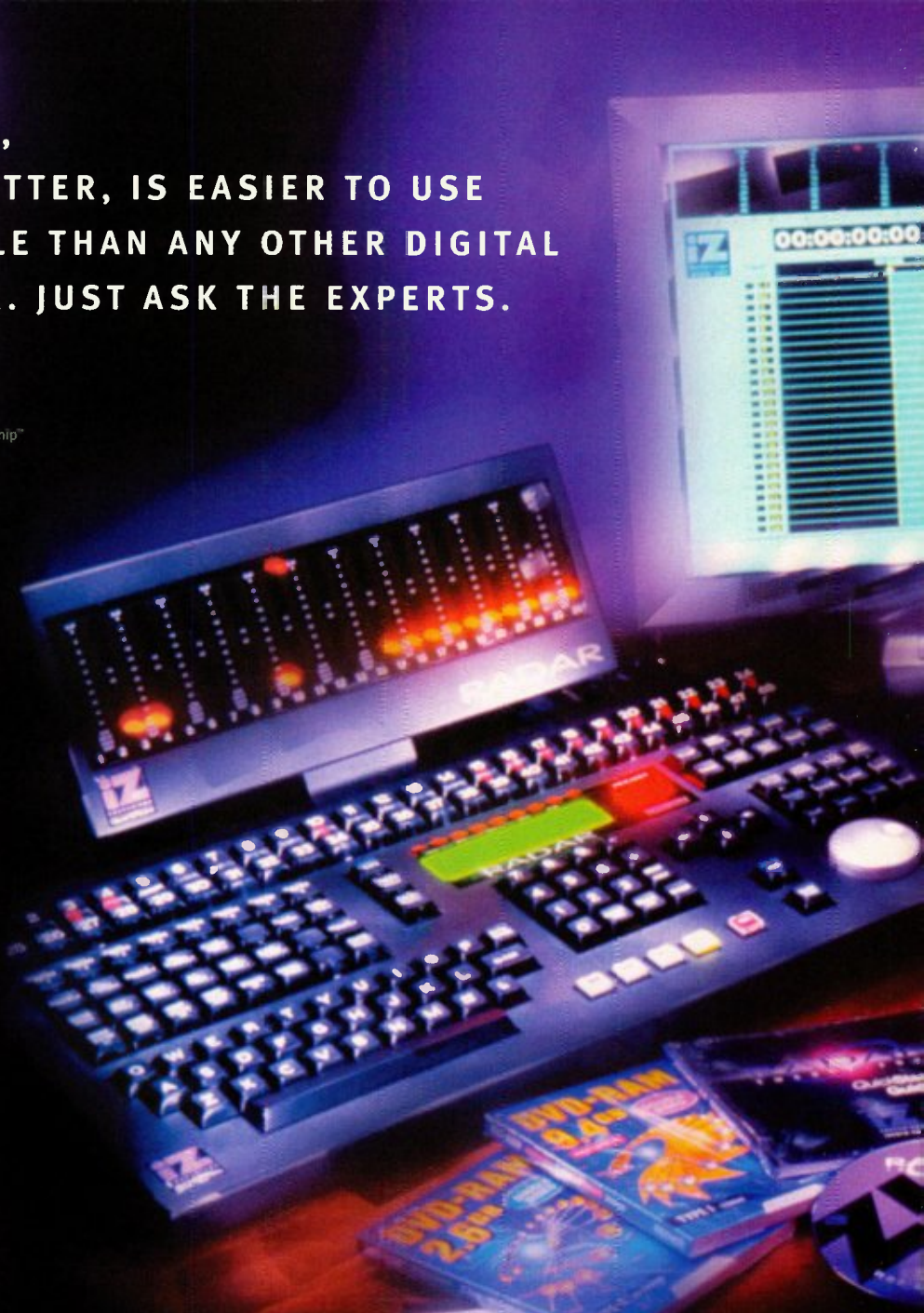

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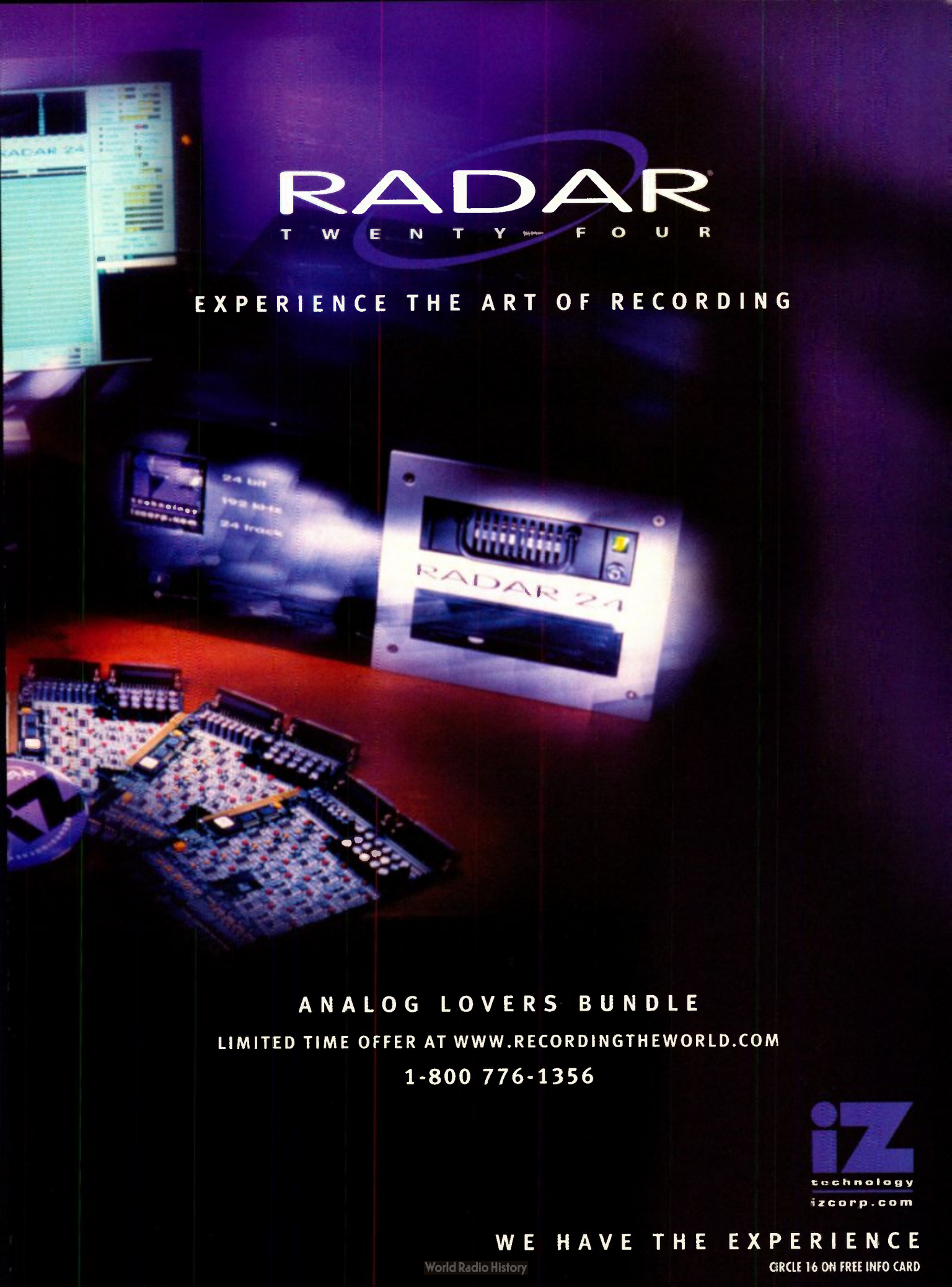

World Radio History

CIRCLE 16 ON FREE INFO CARD

RISING STAR

Anne Kadrovich Johnson

EQ questions an up-and-coming studio engineer

by Howard Massey

Balancing careers as a performing musician and full-time studio manager is no easy task, but this month's Rising Star, Anne Kadrovich Johnson, is doing just that and making great strides in both arenas. Since 1992, she's been working at L.A.'s famed Larrabee Studio complex, first as location manager of Larrabee North, and, more recently, at Larrabee East.

Johnson's position at Larrabee covers coordinating sessions and providing a wide range of client services, as well as keeping track of incoming and outgoing tape, doing the hiring and management of runners, and, as she explains laughingly, "a bit of everything else."

But such a broad scope of duties doesn't prevent her from exploring and developing her creative side. "I play bass and sing backups for a three-piece rock band named Tuscaurora — and for extra cash and fun I also play keyboards in a new wave cover band called The M80s. It keeps a girl busy!"

EQ: How did you land your current gig?

ANNE KADROVICH JOHNSON: The former location manager, Kim O'Donnell, was in a band with my ex-boyfriend. They left to go on tour in Europe in 1992, and, based on my musical and management backgrounds, she recommended me as her replacement. Luckily, I was hired right away.

How did you get started in studio management?

Over the years, I managed everything from retail stores to a health club, and have been really lucky to be able to merge my musical background and management experience.

Where do you see yourself in five years time?

I'd love for Tuscaurora to have a major release out there, but I'd still love to be involved with Larrabee on some level. The studio owner [Kevin Mills] really gets it. He's always on top of new gear, client services, expansion, etc., which makes this a great place to work.

What are your favorite current recordings, and why?

I'm mostly into classical and '80s music, but I do love the latest from William Orbit, Massive Attack, Radiohead, Bjork, and Jill Scott.

What's the best piece of advice anyone ever gave you?

About eight years ago, a friend encouraged me to get back into performing music. It was a big step for me, but it has improved all aspects of my life. Performing, writing, and being actively involved with music helps me feel connected and confident in a way that definitely spills over into my day-to-day life, both at the studio and at home. I'm just not complete without it.

What's the best piece of advice you can give our readers?

I truly believe that doing what you love and being content with your life is much more valuable than having a lot of money. ■

WEBLINK

E-mail Anne at LarrabeeSS@aol.com.

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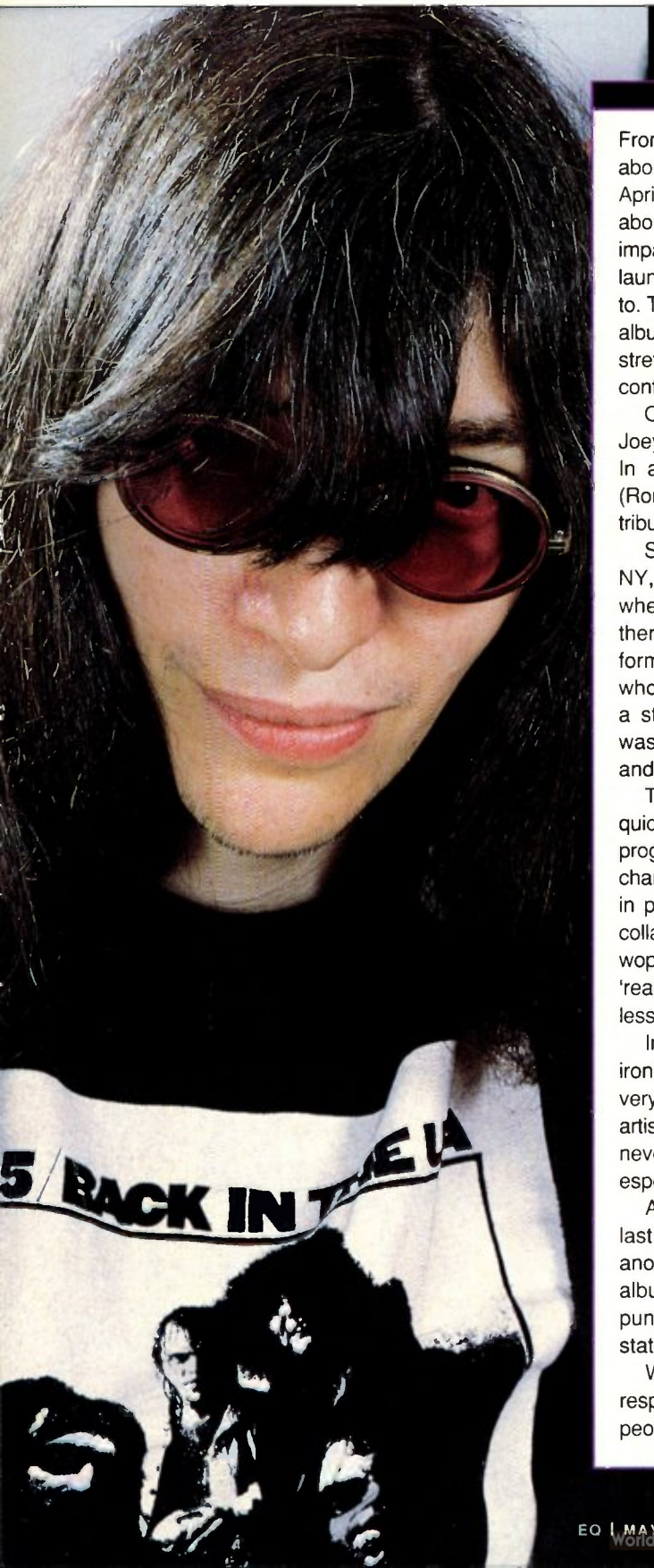
CIRCLE 05 ON FREE INFO CARD

Joey Ramone

Punk pioneer and music addict Joey Ramone dies at 49



by Anthony Savona

From a recording standpoint, there was nothing phenomenal about the self-titled debut album of The Ramones. Released in April of 1976, the entire album was recorded in one evening for about $6,000 — and, many would argue, sounds it. But, the impact of that album can't be denied — it was the unofficial launch of punk rock, and it forever changed the music we listen to. The Ramones went on to have a 22-year career, releasing 21 albums and playing more than 2,200 shows. Their influence stretches from legends such as the Sex Pistols and Iggy Pop to contemporary acts such as Green Day and Blink 182.

On April 15, the voice of The Ramones was silenced forever: Joey Ramone succumbed to lymphatic cancer at the age of 49. In addition to his singing duties, Joey was also a producer (Ronnie Spector, his solo work) and, during the mid-'90s, a contributor to *EQ*.

So how does a tall, gangly kid from Forest Hills, Queens, NY, start a punk music revolution? It was the '70s — a time when disco was king and mainstream rock 'n' roll...well...neither rocked nor rolled. Looking for a musical alternative, Joey formed the band with Dee Dee, Tommy, and Johnny (all of whom took the Ramone surname) in 1974, and soon became a staple at Manhattan's CBGB, where the punk movement was starting with acts such as the Talking Heads, Patti Smith, and Blondie.

The Ramones were the first act to sign a record contract, and, quicker than you can say "Hey Ho Let's Go," the sanctity of '70s progressive rock was forever violated. Joey's impetus for this change stemmed from his rabid love of music — older rock 'n' roll in particular. Daniel Rey, Joey's longtime engineer and studio collaborator, tells us that, "Joey loved all great rock 'n' roll. Doo wop girl groups; British invasion — basically, anything that was 'real.' In fact, Joey always felt that he had to live up to the timelessness of those great songs."

In the studio, Rey remembers Joey as a perfectionist, which is ironic in the seemingly apathetic world of punk music. "Joey was very precise about what he wanted to hear as both producer and artist," continues Rey. "Joey was very efficient, but he also would never settle. We would do it until we did it the way he liked — especially on the songs that he wrote."

Although the man may be gone, the world hasn't heard the last from Joey Ramone: Rey and engineer Jon Marshall Smith, another Joey favorite, are working to finish the singer's solo album. They're committed to finishing it as the demanding punk pioneer would have wanted it: "Joey had a strong vision," states Rey.

What does Rey remember most about Joey? "The music," he responds. "He put a little bit of fire into rock 'n' roll, and I hope people remember to keep the fire burning." ■

PHOTO BY PETER MONROE

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Central Dallas, TX - Guitar Center
Toledo, OH - Peeler Music
San Jose, CA - Guitar Center

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June 14th
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June 20th
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Kendall, FL - Guitar Center
New Orleans, LA - Guitar Center
San Diego, CA - Guitar Center

June 22nd
Cerritos, CA - MARS Music

June 25th
St. Louis, MO - MARS Music
Arlington Heights, IL - Guitar Center

June 26th
Burbank, IL - Sam Ash

June 27th
Kansas City, MO - Mars Music
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Sacramento, CA - Skip's Music

June 28th
Oklahoma City, OK - Guitar Center
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Steinberg
NORTH AMERICA

World Radio History

Destiny's Child
"Say My Name"

by Lisa Roy

DATE: February 10, 2000
STUDIO: The Enterprise
LOCATION: Burbank, CA
ARTIST: Destiny's Child
PROJECT: *The Writing's On the Wall*
TRACK: Rodney Jerkins playing keyboards for the song "Say My Name"
PRODUCER: Rodney Jerkins
ENGINEER: Brad Gilderman
ADDITIONAL ENGINEER: Mike Huff

SIGNAL PATH

Brad Gilderman tells us, "Rodney, who's an amazing programmer, played all the keyboards. Basically, he used an Akai MPC 3000 with a Korg Trinity keyboard as a controller. We rolled in a couple of Roland 2080's, some Korg TR Rack modules, a Kurzweil K2500, and a Roland D550. The keyboards were run through Demeter tube direct boxes and then brought up into the SSL 9000J. I'm a firm believer in 'get it the way you want it to sound while you're tracking.' So, when I brought it up through the 'J console, I EQed and compressed it as if I were doing a mix. We recorded the music to a Sony 3348HR using Ampex 467 tape. Some record companies didn't accept Pro Tools files as masters at that time, and we really liked the sound of the 3348HR, so that's what we recorded to."

MIC POSITION

"The whole song is keyboards — there are no mics [except for the vocals]. That's why I felt the Demeters were so important. The Demeter is a tube direct box — I've been using it for years. I could've used a standard solid-state or passive direct box, but, to really capture the warmth of the keyboards, I decided to get a bunch of tube direct boxes. That's also why I use the 'J consoles — because I feel the preamps are excellent. With the vintage mics on the vocals, everything sounds nice, rich, and warm, with the modern punch sound the 'J console is so wonderful for. So when we tracked the keyboards, I wanted the same warm sound as the

Brad Gilderman

vocals. The Demeter direct boxes provided that."

PROCESSING: "Most of the EQ I used was what was on the 'J console. What makes the 9000J console so versatile is that I've got [SSL series] 'G and 'E EQ as well. For the bassline, I used the 'G EQ, setting it around 3k and boosting a little bit for a narrow band. For the bottom-end, I used a little wider band, between 60 and 100 Hz with a little boost. The compression was a combination of the console as well as DBX 160's with Teletronics LA-2A's on the bass line. On the compression, the 160's were used at a 4:1 compression ratio with anywhere from 3 to 5 dB of compression. The LA-2A's on the bass keyboard ran 3 to 7 dB of gain reduction.

"In the past, I've been a big fan of trying to run things all vintage, trying to keep the warmth because everything sounds so processed — especially with today's keyboards. I was always trying to fight that. On this record we went with more of a 'let technology show us the way' type of plan."

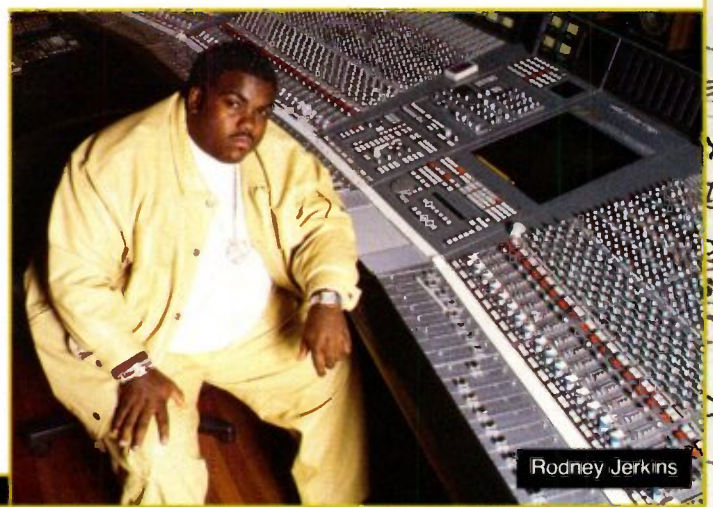
TRACK NOTES

"There's a great story about the keyboards on this track. Rodney and a couple of his writers, Fred Jerkins and Leshawn Daniel, got together at Darkchild Studios, Rodney's home studio in New Jersey, and came up with a basic concept for this song. It's basically just a keyboard demo version transferred from a DAT to Pro Tools. Then we recorded vocals into Pro Tools, which we did at my main studio, Pacifique in North Hollywood, through its 9000J console. Our setup for doing vocals was a vintage [Neumann] U 47 through a Neve 1073 with an 1176 black-face limiter. We used a three-baffle setup, which the mic sat within. The girls sang into that so we kept a nice, intimate, dry, warm sound. That was basically our first day. Now we had a raw track with all of their backgrounds laid throughout the song. We came back in the next day and concentrated on Beyonce's lead vocals.

"For 'Say My Name,' some time elapsed between finishing vocals and giving it a mix. It was a few months later that we went back to The Enterprise to individually cut all of the instruments, which was done through Rodney's large MIDI keyboard setup. At the last minute, Rodney says, 'You know what? I don't like the music anymore.'

"Now this was the day before the mix. Rodney changed his mind and said, 'Hang on, give me an hour.' We left Rodney — he kept the vocals, stripped all the music, and did a whole new arrangement over the existing vocals. At that point, we re-tracked the song through the same processing because all the keyboards were already set up, but the sounds were a little different. So we had to re-EQ and come up with some special effects. We balanced things a little differently, but the processing stayed the same. I kept the same LA-2A on the bass. I just EQed the bass a little differently because instead of this big, woofy bass, Rodney had something that had more punch to it. Three hours later, entirely new music for this song was created with the same vocals that were originally laid to another track, and it went on to become a number one song!

"That's Rodney — he's amazing. You're talking about a 23-year-old kid that goes in and works his tail off for 22 hours at a time — it's just pure adrenaline and excitement that keeps him going. On these sessions there was no cussing, no drinking, no smoking, no Cognac, no nothing! We barely ate. If he does eat, it's McDonalds. As a work ethic, it's a far departure from the 'R&B hip-hop world,' so to speak, which is really refreshing. It was just a total straight-ahead, balls-to-the-wall work ethic." ■


Rodney Jerkins

WEBLINK

You can visit the Living Room Music Web site at www.nolie-arts.com.

World Radio History

By Steve La Cerra

Living Room Music

Studio magic with just a touch of hops

STUDIO NAME: Living Room Music, Glenora Springs Brewery LTD
LOCATION: Glenora, Ontario, Canada
KEY CREW: John McKinney, Katalin Kiss
CREDITS: Vocalist Katalin Kiss has performed national jingles and commercials, and is regularly featured with symphony orchestras across North America, as well as with KTI, her alt/folk/funk band. John has played bass with the Drifters, Mamas and the Papas, Gary US Bonds, 5th Dimension, Sam and Dave, and Alex Chilton. Together they've produced and released 25 albums for their indie label, LRM.
MIXING CONSOLE: Yamaha 02R
MONITORS: Tannoy PBM 6.5 and NFM 8; Boston Acoustics with Tannoy drivers, JBL EON Power 15
HEADPHONES: AKG K240 [3], Koss K711 [6]
AMPLIFIERS: Yamaha Natural Sound R5, Peavey M2600
RECORDERS: Akai DR8 [2], Fostex 280, Yamaha DTR2 DAT, NAD 6125 cassette, JVC TDW103 dual cassette, TEAC V200 cassette
OUTBOARD: Yamaha GC2020 Compressor, NEI Graphic EQ, Megga Sound WUQ/B Stereo Graphic EQ
EFFECTS: Yamaha SPX90, GW10, and SB100; TC Electronic M2000 and Finalizer Plus; Tech21 SansAmp, DOD Octoplus, Boss DS1, Ibanez EPP 400, Digital Delay, and BassChorus; Electro Harmonix Micro Synth
MICROPHONES: Shure SM57, SM58, and Beta 58; Rode NT-2 [2], Yamaha MZ204 [2]; AKG D112, Calrec 1050, JBL 581 [2]
MIC PREAMPS: Focusrite Vocal Master
SAMPLERS/KEYBOARDS/MIDI MODULES: Wurlitzer, Peavey DPM3se, Thomas 1125 Organ, Hohner accordion, Roland R8 and MC 505 Groovemaster
COMPUTERS: Apple Macintosh Classic II and PowerPC G3/266 with 8 GB and 4 GB Seagate hard drives [2]
BEER: Glenora Springs Brewery produces Red Coat Pale Ale, McKinney's Triple Chin Irish Dark Ale, and White Cap Premium Lager. They brew in 1,000-liter batches twice a week without preservatives or adjuncts (613-476-PINT).
STUDIO NOTES: According to John and Katalin, "The studio is within cap-flicking distance of Glenora Springs Brewery, which is run by John and Jim McKinney — so there's a constant flow of innovation. LRM also produces an annual Indie festival/beer tasting. Things can get a little confusing, but everyone awakens with clear heads! The studio/brewery is located on the shores of the Bay of Quinte on the island of Prince Edward County, Ontario.

"At the rear of the building we've created LRM's 'No Holds Barred Guitar Bondage Room' — an isolated 10x10-foot cubicle that serves as a drum booth or iso room for tracking live guitars. The room is stocked with all of our working cabinets, all hardwired with a snake back to the control room. We have a splitter that allows us to quickly spin through all the cabinets available.

"The brewery also offers a live space, which is brought into use if a larger room sound is required." ■

World Radio History

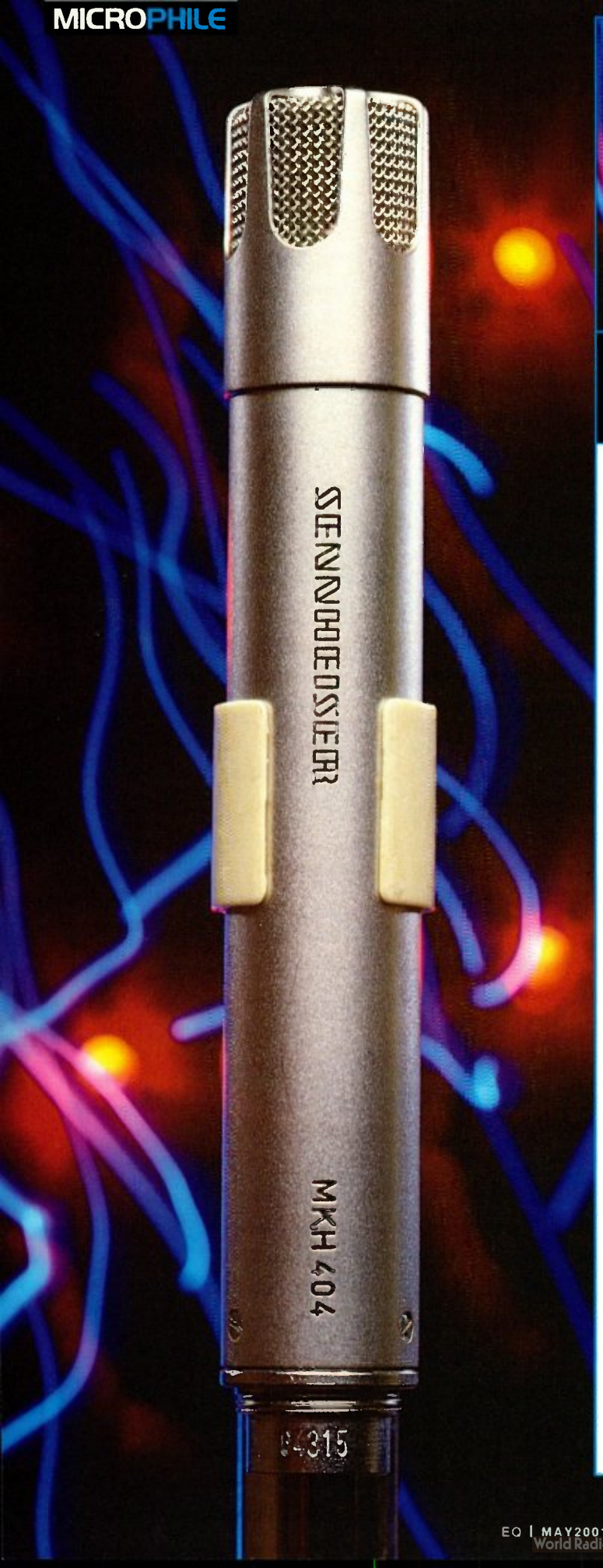


PHOTO BY EDWARD COLVER

Sennheiser MKH 404

MICROPHONE NAME: Sennheiser MKH 404
FROM THE COLLECTION OF: Dave Fontaine, High Strung Music
YEAR MANUFACTURED: circa 1972
TYPE OF MIC: RF condenser
POLAR PATTERN: Cardioid
FREQUENCY RESPONSE: 40 to 20,000 Hz
OUTPUT LEVEL: –37 dBm referenced to 1 milliwatt/10 dynes/square cm
WEIGHTED NOISE VOLTAGE: 7 µvolts, approximate (DIN 45405)
EQUIVALENT NOISE LEVEL: 25 dB (DIN 45405)
TOTAL HARMONIC DISTORTION: less than 0.5% at 100 µbar
IMPEDANCE: 100 ohms
MINIMUM MATCHING LOAD: 2,000 ohms
POWER SUPPLY VOLTAGE: 6 volts ±1 volt
OPERATING CURRENT: 5 milliamps
DIMENSIONS: 5.44 long x 0.75 diameter (inches)
WEIGHT: 3.5 ounces
MIC NOTES: Differing from the design of most DC-biased condenser microphones, the element of the MKH 404 (and its sibling, the MKH 405) acts as a component in an RF circuit, and operates much like an FM detector. By nature, this is a low-impedance design, making the capsule quite insensitive to EM interference. The MKH 404 uses a dedicated six-volt outboard power supply for operation and delivers an unbalanced audio output, whereas the MKH 405 employs a 10-volt supply and puts out a balanced audio signal. Both mics use a three-pin Tuchel cable to connect to the power supply, and a standard XLR mic cable for the audio output from the supply.
USER TIPS: Capable of operating over a range from 14 to 158 degrees Farenheit, the MKH 404 is relatively insensitive to ambient temperature and humidity. The mic exhibits a fairly flat frequency response over the range of 40 Hz to 20 kHz with a gentle bump of a few dB in the region from 2 kHz to 6 kHz. A pair of MKH 404's is a good choice for overhead drum use. Try placing the mics in an X-Y configuration, six to eight feet in front of the kit, at a height equal to that of the cymbals. ■

World Radio History

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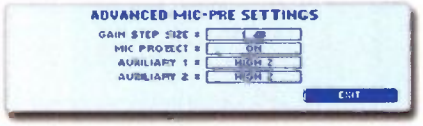
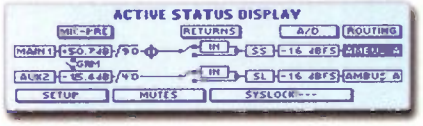


...and there are additional configuration options for the ultimate in rapid, precise control...



...while the Active Status Display gives an overview of the entire Trak2 topology.

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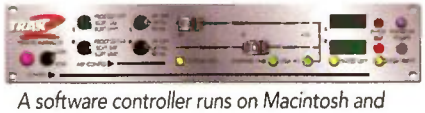

A software controller runs on Macintosh and Windows machines to allow remote access to the Trak2 via MIDI.

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CIRCLE 73 ON FREE INFO CARD

Straight-talk about Sally Browder's labor of love

Sally Browder

SUSPECT:	Sally Browder
OCCUPATION:	Producer/engineer
BIRTHPLACE:	Providence, Rhode Island
RESIDENCE:	L.A. —The Valley
VEHICLE:	"Mustang — no, not an old exotic one."
PET PEEVES:	"People who cannot make up their minds."
SELECTED CREDITS:	Produced/engineered/mixed: Racing 8, New Model Army, Claw Hammer, The Humpers, Buck, The Chicken Hawks, The Red Aunts, The Bottom Feeders, Cheeseburger, Ten Foot Pole.
ENGINEERED/ MIXED:	Eliades Ochoa, The I-10 Chronicles Part I and,II, The Plimsouls, Rocket From the Crypt, The Silos, Killer Dwarfs, MC5's Wayne Kramer.
MIXED:	Geggy Tah, The Geraldine Fibbers.
RECORDED:	Dwight Yoakam, Flaco Jimenez, The Muffs, etc.
NOTES:	Known for her bold guitar-based rock, in the mid-'90s Browder was called a "rising star in punk production circles" by Alternative Press. She has since branched out to include a wide range of musical genres to satisfy the demand for her distinct and aggressive production style.
LOCATION OF PHOTOS:	Record One/L.A. during recording of Eliades Ochoa, of The Buena Vista Social Club.

EQ: What are your essential recording tools?

SALLY BROWDER: My imagination and my ears — no, seriously, while I really like old Neve and API consoles, I will work on any desk — I don't mind. And I don't care too much about the medium — tape or hard drive, whatever you've got on hand. A great artist is most essential.

What gear do you own and haul around?

I don't carry much with me. I like to make use of whatever a room has — it keeps me on my toes. Sometimes I'll bring a pair of modified JBL 4208 monitors with me for mixing, my old Master Room reverb, and a few mics that I don't usually find in studios — an [Shure] SM7, SM98's, an Audix CX111, a Beyer M160. Nothing exotic.

How do you use Pro Tools in a unique way?

I really just use it to speed up the process. I love editing on Pro Tools and being able to carry a record around on a hot swap. No more traveling with two-inch. Some bands come to me with their record on a hard drive, and I can edit songs, drop in samples, and add sounds without worrying about track limitations. It frees me up to do a lot more than I could before Pro Tools. And some of the plug-ins, like Amp Farm and Auto Tune, are really amazing. So, in a long-winded answer to your question, I don't use it in a unique way — I just use it like a compact, mobile studio.

Which studios do you prefer, and why?

I like to move around so I don't fall into habits and do the same thing over and over. I like Doug Messenger's Studio in North Hollywood. It's one of my favorites, and I've done a lot of records there. I like Ocean Studio in Burbank — they have a great, rich-sounding room. I did a record with Rocket From The Crypt there. I like American Recording out in Calabasas. That's another great room. Lately it's been Record One and The Dog Bone. I pick a studio for the room, and for convenience and creature comforts. I like to be comfortable, and I want the artist to be comfortable.

How was it working with Eliades and the Cuban musicians?

They were a blast. They're a little street, a little edgy for their kind of music, and I like edgy. They spoke no English, and I mean *no* English. I learned a bit of Spanish after a month. We had an interpreter, but actually things went faster

World Radio History

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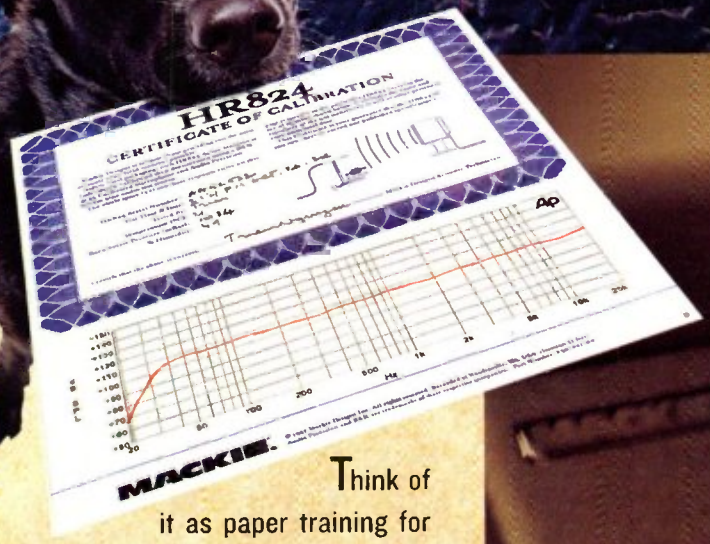

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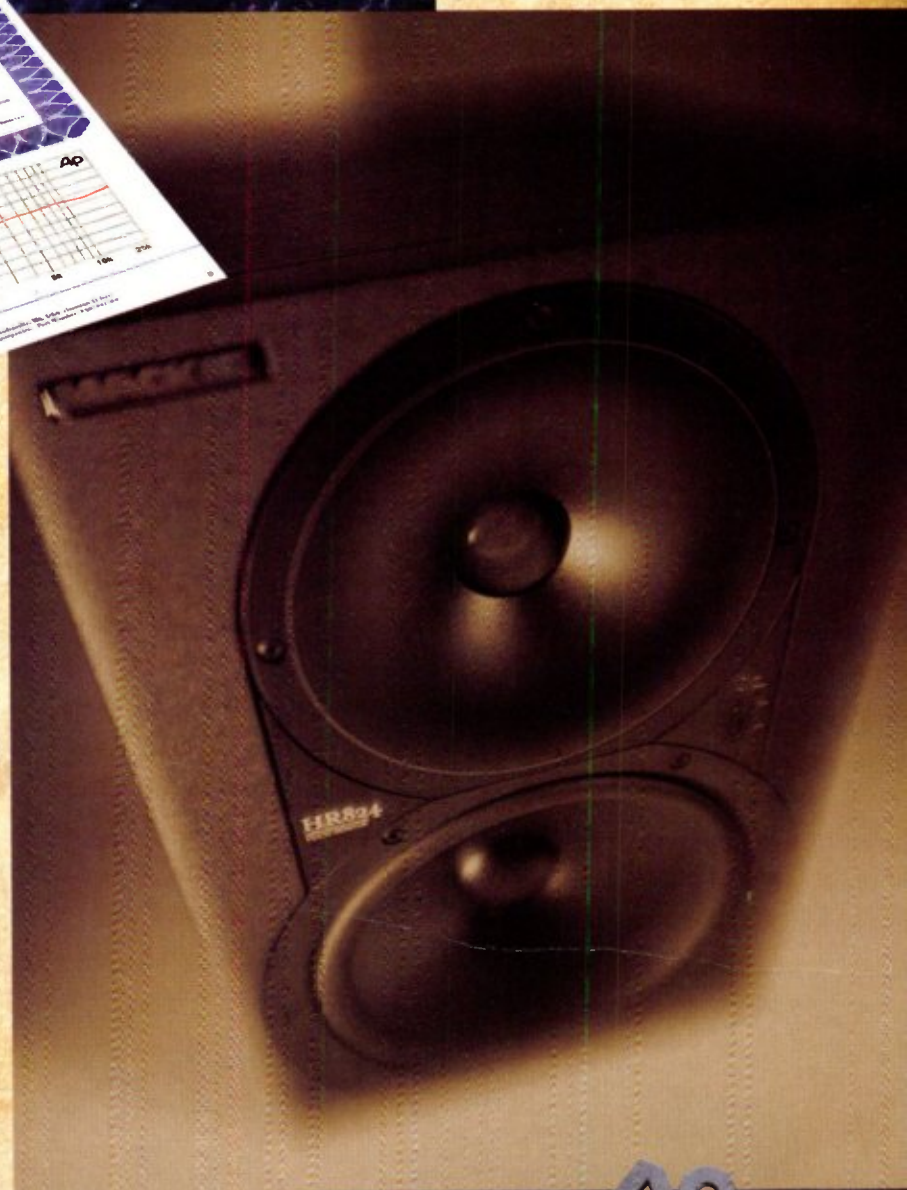

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CIRCLE 41 ON FREE INFO CARD

without him. Eliades and the band had barely even overdubbed before. Once they found out about punching in, and about overdubbing, they were delirious with the possibilities, but we ended up doing the majority of it live once they settled down about the technical thrills.

If you were a musical instrument, which would you be?

Electric guitar.

What's wrong with the music industry?

How much time did you say you have? How about we talk about what's starting to be right about the music industry — new technologies and the Internet may prove to be the great equalizer for artists who deserve to be heard, and the music-buying public has more choices now. Independent labels and artists who fund their own records are beginning to have a chance to make a good living. They know their audience, and the Internet is an inexpensive way to reach them. Email and Web sites are replacing mailings and print ads. Artists who fund their own records and license them, like The Silos, can do quite well for themselves, especially if they tour a lot.

Of course, they have to be willing to work hard, but who in America doesn't have to work hard to make a good living? Epitaph has done really well for themselves, and not just in punk rock. Tom Waits and Merle Haggard are selling well for them. Sympathy, Fat Wreck Chords, Lookout! They may not sell 100,000 records on an artist, but they don't spend that much either. And, with the inexpensive hard disk recording and editing capabilities that are now available to most artists, anyone can make a record. Of course, the technology accentuates everyone's (artists, producers, engineers) creative weaknesses as well as strengths. And there's a lot of bad music being made as well as good, but there's nothing new about that, is there?

What music would you like played at your funeral?

Blonde On Blonde [Bob Dylan].

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What do you listen to while you're driving?

Blonde On Blonde, Live Forever Or Die Trying [Humpers], *Sweethearts Of The Rodeo, Toys In The Attic* [Aerosmith].

What's the first music you remember hearing?

Woody Guthrie.

Is there anyone in the world you'd like to produce?

Aerosmith.

What's your strongest characteristic as a human being?

I don't know — I never give up. And I'm very fair.

How would you describe your working environment?

Mr. Bonzai, you know, it's like a doctor's office or a confessional....

What old saying do you hate the most?

The early bird catches the worm.

Who's the most amazing artist you've worked with?

I can't pick a favorite because there have been a lot of inspiring and talented folk along the way. Scott Drake, Dwight Yoakam, Evan Burr, Chris Hillman, Jon Wahl, and Herb Pedersen — the more I name, the more I leave out. I've met a lot of really great people.

What makes a great producer?

There are so many different definitions of producer — it's kind of subjective. For me, it means having a vision for the record — picking songs, working on song structure, arrangements, sometimes even lyrical or musical changes. It also means designing the sound of the record and having the songs and the sound be a reflection of who the artist is at the time. And, for some artists, it may mean being a shrink or a diplomat or whatever the hell else they need to get through the record with the best performances they have in them.

What's the biggest mistake of your life?

I don't think I've made it yet, because everything's always turned out fine.

Any advice for getting a good start in the music business?

Work harder than you ever imagined, always do your best at everything you take on, don't let anyone tell you it can't be done, and be very grateful that you get to listen to music all day for a living.

What would you like Santa to bring you this year?

A new Mustang. ■

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CIRCLE 74 ON FREE INFO CARD

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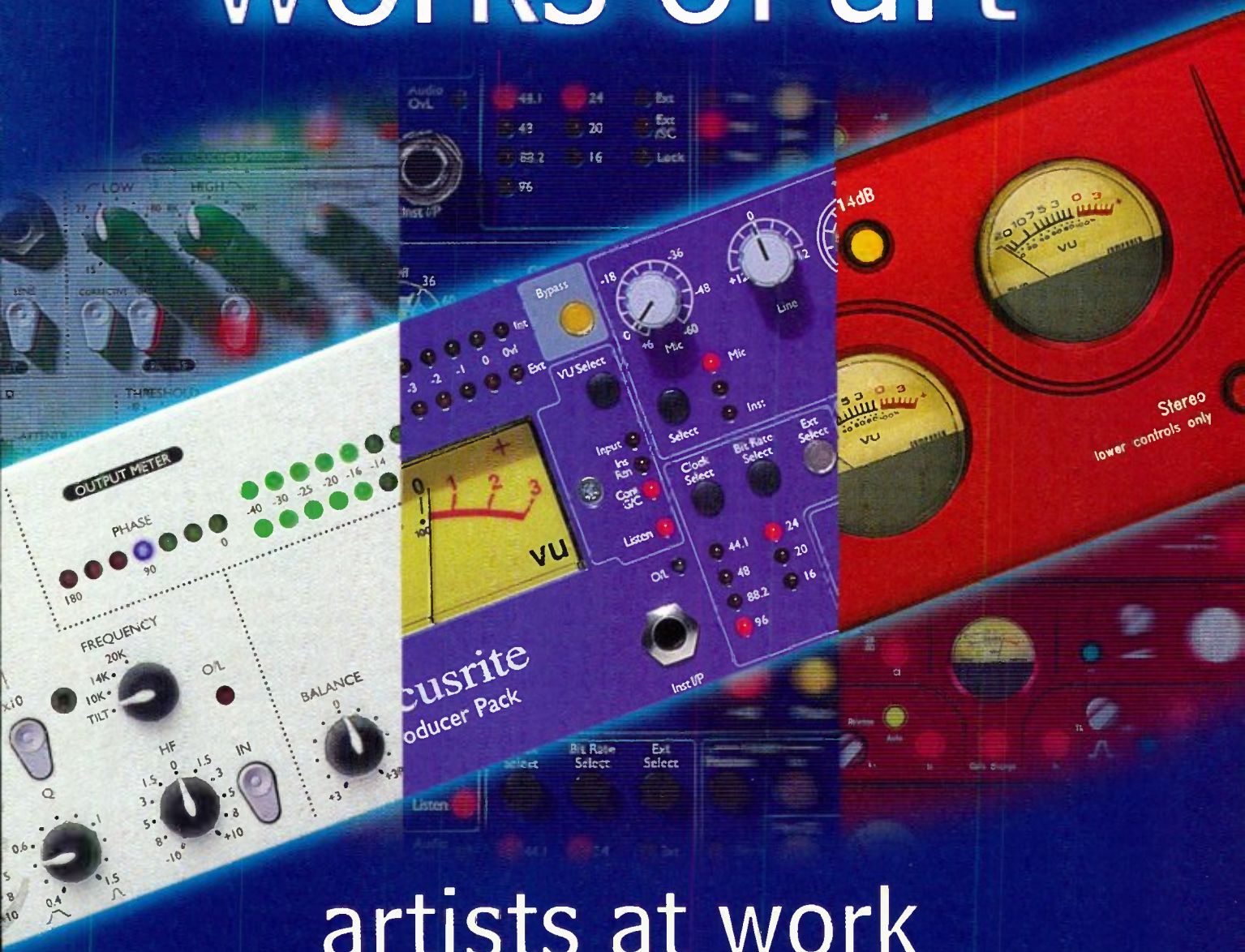
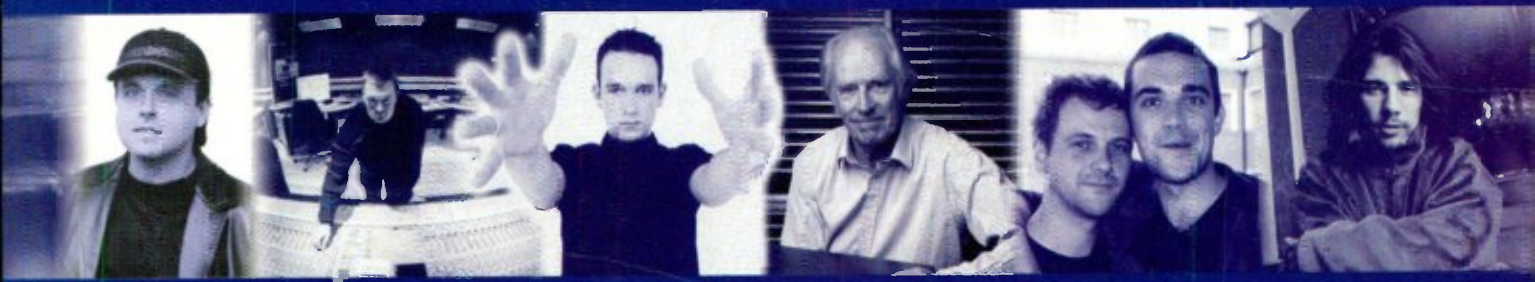
works of art



artists at work



Walter Afanasieff | Mark "Spike" Stent | MJ Cole | Sir George Martin | Robbie Williams & Guy Chambers | Jay Kay

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CIRCLE 70 ON FREE INFO CARD

World Radio History

Lessons learned while remote recording in the rainforests of Ecuador

Jungle Fever

by Mikail Graham

Recording live music certainly has its share of potential problems, including microphone failure, levels being too hot or not hot enough, poor instrument separation, too much background noise, or realizing at the last minute you don't have enough tape. Happily these problems can be solved reasonably easily if you're working near a fairly populated location. But try recording in the rainforests, where the background noise is between 90 to 100 dB minimum, monsoon-style rainstorms appear within minutes after you set up, and the humidity can stop a DAT recorder dead in its tracks — or even before the sessions starts. And as for forgetting something, there's nothing even close to a Radio Shack to be found for hundreds of miles if you need a cable or extra batteries.

Things can get out of hand pretty quickly if you're not extremely well prepared. I found this out the hard way while working in Ecuador on a documentary about a rainforest tribe of shaman/headhunters called the Shuar, whose culture and traditions are slowly dying away due to the march of progress.

I had a very small window of time in which to prepare for the trip, and an even smaller budget, since the project was essentially a labor of love, financed mostly by Mary Tendall (who conceived the project) and the Dream Change Coalition, a non-profit organization.

CREW & GEAR

We had a veteran tech crew, including filmmaker and producer Burrill Crohn, who has shot many classic jazz films and documentaries, and my second engineer/tech Chris Amson, who has mixed for Jethro Tull, Herbie Hancock, Andy Summers, and others for years. When assembling the gear, I had important factors to consider, one being how we were going to power everything in the middle of the jungle. We ended up using an ultra-quiet, very lightweight Honda EU1000i generator, which outputs 1,000 watts of power for five to eight hours on around 1/2-gallon of gas. As it turned out, we used it mainly to recharge batteries at the end of each day as the majority of the gear we chose ended up being battery powered.

A second concern was to find recording gear that would work in high humidity and not die if it got a tad wet. I made my choice based on the need for audio quality, power requirements, and weight (we had to fly and then hike into the jungle). I chose to rent a Zaxcom DEVA II with a Pioneer DVD backup so I could have a hard copy of each day's work. The DEVA II is a high-quality four-track 24-bit portable hard disk recorder that uses removable 10 GB drives and has built-in powered mic preamps and useful onboard DSP functions (EQ, gate, compressor), as well as an onboard timecode reader/generator, all weighing only 5 lbs. with battery. I also brought along an Aiwa AM-F70 MiniDisc player and a Sony PC-5 camcorder for capturing ambient sounds and for having a basic video reference of the sessions and locale. I looked at a variety of microphone options and settled on a pair of AKG 414's, a pair of Sennheiser MKH-50's, and a custom binaural headset mic rig for use with the Aiwa MiniDisc. (Mainly due to the fact that the budget was tight, and I already owned them all.) The guys at Coffey Sound (the rental company we used in Los Angeles) happened to throw in a pair of 48-volt power supplies as a *just in case solution*, which turned out to be a godsend. We packed everything into watertight Pelican cases and took off on the journey of a lifetime.

THE TRIBE HAS SPOKEN: The artists to be recorded in their native locale.

RAINFOREST RECORDING

The recordings themselves ranged from large groups of 15–20 natives in various outdoor settings to individual recordings of key tribe members singing stories and songs about their daily life. These are sung as affirmations that the Shuar call

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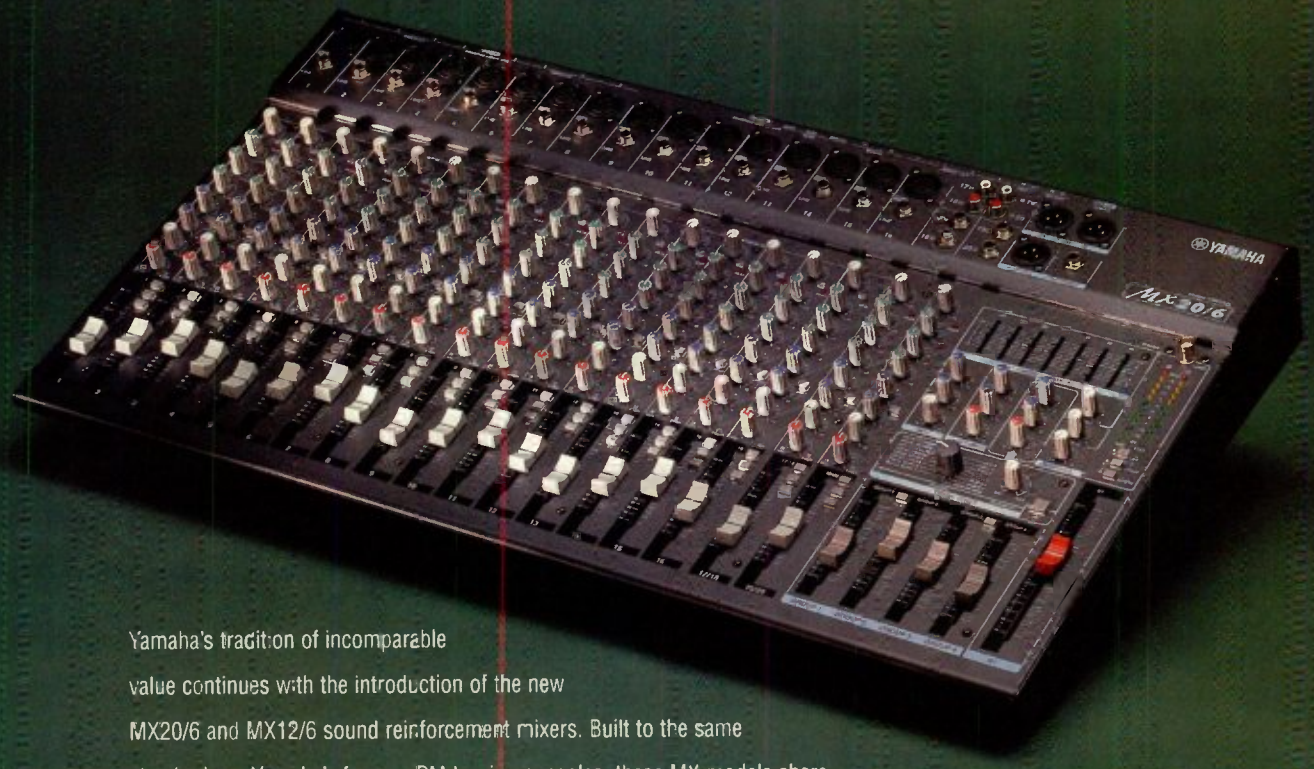

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CIRCLE 76 ON FREE INFO CARD

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Anents, which give thanks to the spirits of the forest, fish, and others. For some recordings we had to hike for several miles and then canoe across wide rivers and creeks to get to the desired location, so making sure we had as minimal a setup as possible was paramount. Some recordings took place both inside and outside of what the Shuar call a *Longhouse,* where head-shrinking ceremonies are performed — though for our sessions they thankfully performed a mock ceremony! I used a basic four-channel mic setup to create a surround *live* feeling for the tracks. Later, during mixdown, I added two to four ambient tracks of various binaural jungle recordings to complete the effect.

BUNGLE IN THE JUNGLE

I ran into several problems that could have been avoided had I followed my own advice (see "15 Remote Recording Tips" below). The worst problem was that I really thought I knew the DEVA II well, when, in actual fact, I didn't — and to complicate matters, the manual didn't arrive in time for the trip. In hindsight, I realize I simply didn't spend enough time working with the rental gear before jumping into the middle of the jungle. It turned out that the rented DEVA II had a bad internal backup battery; each time I turned it off all of my settings were lost, so I'd have to reset all of its onboard preferences when I turned it back on.

A more serious issue was that the DEVA II wasn't outputting a true 48 volts of phantom power for the mics, instead it was producing more like 36–38 volts. Because of this, the mic levels were lower and less vibrant than they could have been. But thank goodness for those extra 48-volt battery power supplies the rental folks had thrown in! The shame was that I didn't figure this out until the end of the second day of recording (out of four total), so the early sessions had to be level-boosted later in Pro Tools.

Last, but certainly not least, for whatever reason, the DEVA II just completely freaked out several times and had to be reset by removing its battery — not

(l-r) Tribe spokesman Peem Tuntial, author Mikail Graham, producer Mary Tendall, videographer Burrill Crohn, assistant Julia Wulf, and second engineer/tech Chris Amson.

WEBLINK

For more information on the Shuar Project and the Dream Change Coalition visit www.dreamchange.org.

CIRCLE 15 ON FREE INFO CARD

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A SHUAR THING

The first CD release of the Shuar project will be available mid-summer 2001. A 5.1 surround DVD release is also in the works, including video shot while on location. The DVD is scheduled for release in 2002.

fun at all. Luckily this happened only at the beginning of a few takes.

The moral of the story is, "Be prepared and know your gear inside and out no matter where or what you're working on." That way you'll always be able give the project the best you have to offer.

15 REMOTE RECORDING TIPS

- Know the gear you're using inside and out, as you won't be able to call tech support — and *be sure* to try it out in a mock recording situation before you get into the real thing!
- Bring lots of heavy-duty freezer-style airtight plastic bags in various sizes to help keep things dry.
- Make sure you have your gear packed in watertight cases and keep all of it properly stored there when it's not in use.
- Bring along gear manuals, but expect them to be ruined. Photocopy your original manual and then bring the copy along, as you'll most likely need it.
- Use as much battery-powered gear as possible.
- Be sure you have enough batteries! There's no where in the jungle to get them if you need more....
- Use lightweight camera tripods for mic stands, as they're easier on your back and legs.
- To keep them stable, weight tripods and stands using plastic bags filled with sand.
- Choose a format for your recordings that's robust and media that's as close to sealed as possible.
- Bring external phantom power supplies for condenser mics — *be sure they output the correct voltage!*
- Bring extra cables and connectors.
- Bring a simple but complete tool kit, and don't forget a voltmeter, battery-powered soldering iron, and solder.
- Make a checklist ahead of time and refer to it after each session to make sure you don't leave something behind — it's no fun when you're five miles down river from your last location and find out that a cable is missing.
- If you can afford it, bring two of everything critical.
- Remember Murphy's Law! Be prepared for the worst....

Special thanks to Zaxcom (**www.zaxcom.com**) and Coffey Sound (323-876-7525 or **www.coffeysound.com**), who were quite sympathetic to our cause.

Mikail Graham is a selective media consultant who long ago decided that being independent was much more fun than being owned by just one company. He has a weekly radio show called The Other Side on KVMR (www.kvmr.org) that's going into its 23rd year, and still manages to compose new music and produce regional records and shows on a regular basis.

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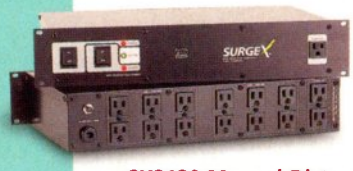

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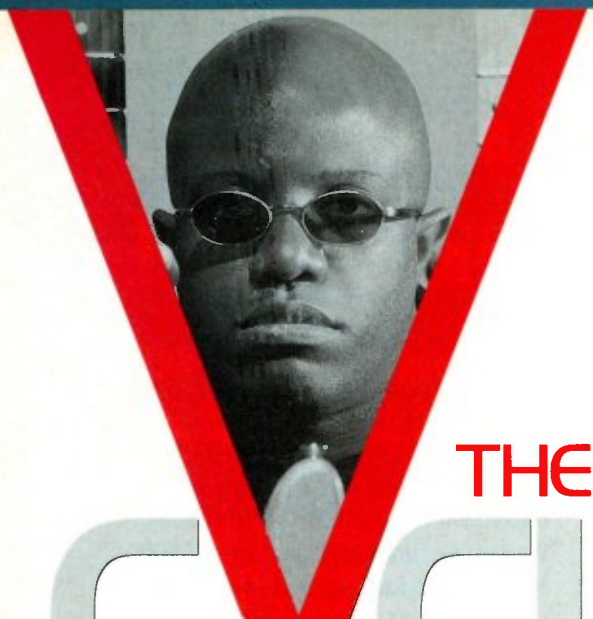

THE BRADFORD EXCHANGE

THE MULTI-TALENTED MICHAEL BRADFORD HITS MULTI-PLATINUM WITH A LEGION OF DIVERSE ACTS

BY HOWARD MASSEY

If you haven't heard the name yet, you will: Michael Bradford is a producer, engineer, musician, and songwriter *extraordinaire.* He played an integral part in the stunning success of Kid Rock's multi-platinum *The History Of Rock,* and, more recently, Uncle Kracker's "Follow Me" (from the *Double Wide* album) — one of the most-requested songs of 2001.

His empathy behind the board stems, no doubt, from his long apprenticeship as a multi-instrumentalist sideman, playing everything from bass (his main axe) to guitar to keyboards to drum programs. He's toured extensively with a broad range of artists, from reggae's Heptones to jazz guitarists Earl Klugh and Grant Green, to R & B artists such as Anita Baker, filling in the gaps between tours honing his craft in the recording studios of his native Detroit. It was there that he began assisting for Bob Seger's engineer Gerard Smerek, jumping on the Pro Tools bandwagon long before it was fashionable, and learning how to tame the demons of digital recording.

It wasn't long before Bradford made his move to the City of Angels, where he quickly developed a reputation as one of the town's top programmers. His skills landed him a gig with legendary arranger Paul Buckmaster (Elton John), with whom he has collaborated on several movie soundtracks. Bradford also developed working relationships with Terence Trent D'arby, Madonna, and New Radicals' founder Gregg Alexander. Currently, Bradford is working on projects with Meredith Brooks, Tre Hardson (of the Pharcyde),Youngstown, Tommy Lee's Methods of Mayhem, and Run-DMC, as well

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as releasing solo material under his pseudonym Chunky Style.

EQ: Maybe you can begin by running down the main pieces of gear that you have here.

MICHAEL BRADFORD: Well, my studio's pretty much all digital. It's not that I have anything against analog; it's just that it's easier for me to work in a digital format, mainly because of editing and total recall — really, just the convenience. I switch from project to project, and I love having the ability to snap from one thing to another without a major reset or documenting a patchbay — it's just so much easier this way.

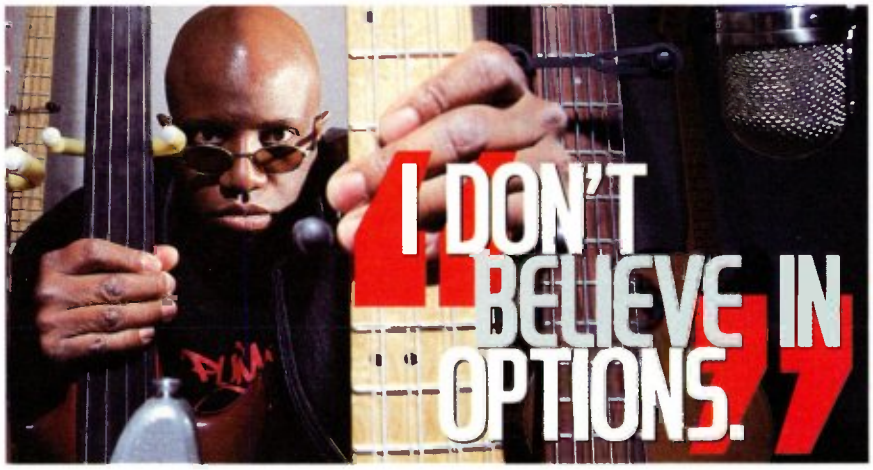
It's also very compact and very portable; I take a lot of this gear on the road with me when I'm on tour. I've got a rack with MIDI gear — [Emu] Planet Phatt and Orbit, a couple of samplers, and a couple of rackmount synthesizers, including the Nord Modular. Then I've got a second rack which is my Pro Tools system — it's a Mix Plus with a couple of extra DSP cards. I've got an old-fashioned DAT machine, because sooner or later you've got to archive, and my computer also has a CD burner, a tape backup system, and a hot-pluggable hard drive. My speakers are Mackie HR824 powered monitors. I love those things; I've got a special case made for them so I can take them with me everywhere I go. There's an old-school turntable for DJ-type work and a mixer for that, but the only really classic piece of gear in here is an ARP 2600 synthesizer that I still love to use. I started out a long time ago programming synthesizers; I'm into sound design, so I enjoy having boxes like that around.

I have another room next door that's an iso room; it's got a regular drum kit and various microphones, plus a couple of amps — Marshall, [Ampeg] SVT — and there's another room down the hall that's a sort of lounge, just a sit-and-chill kind of room.

What's your typical signal chain when recording bass?

Bass is my first instrument; it's the most natural instrument for me, so I take a lot of care in recording it, though the signal chain varies. My touring bass amp, which I use a lot in the studio now, is called the Mo'Bass, by SWR. It provides a complete signal chain, including a tube preamp, an analog Moog-style filter for auto-wah effects, analog distortion, parametric EQ, and a subsonic generator. It can also operate in a dual mode so that one channel is clean, while the other channel has effects. This is very valuable when I want distortion, but still need a full low end. I also have an 8x10 cabinet that can be split. I often go direct, but if I use the cabinet, I tend to mic it with an [Electrovoice] RE20 or a [Sennheiser] 421.

Another thing I've been using lately is the Line 6 Bass Pod, and my usual chain then is just to go from the bass straight into that and then take either a digital or analog output and record it into Pro



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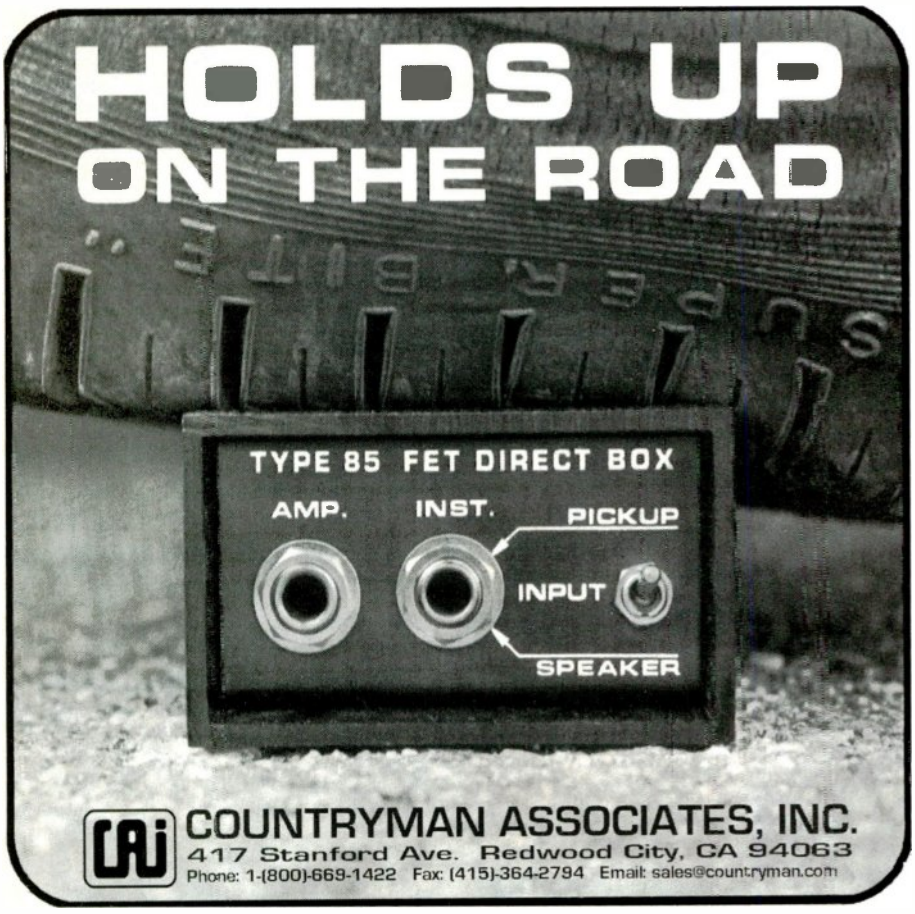

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Tools. If I'm in a studio where there's a console and a more standard signal chain, I'll tend to run it through something like an Avalon DI. I don't really use a lot of external gear for processing things because I think basses sound pretty good the way they are, and the more boxes you run things through — well, I don't know that it really helps the sound as much as it's just more stuff to write down! [*Laughs.*]

I've had to make records in all kinds of conditions that were pretty primitive — *The History Of Rock* was recorded on our tour bus; Uncle Kracker's record was also done on a bus. I've recorded stuff in some pretty unusual places — places where I didn't have the benefit of a large-format console and 30 pieces of outboard gear, and they still sold millions of records. I've reached the conclusion that, although it's good to have a lot of gear for options, I think sometimes engineers make the mistake of piling stuff on to make a more impressive looking pile, rather than to make a better sound.

Do you use the DI signal from the Bass Pod or just the processed output?

I use the processed output. If I'm going to use the Pod, it's because of the sound that it makes. I don't really want to use it as just a volume booster; if that were the case, I'd just use whatever preamp was available.

You don't take the DI signal as well, just to give yourself the option later?

I don't believe in options. I'm radical that way. I don't like options, because they just mean you take more time. I've been in this business for twenty years, and when I started out, you didn't have nearly as many tracks to work with as you have now, and you had to make decisions — you had to say, "This is what I want it to sound like," and you went from there. You didn't cut three tracks of bass — one clean, one processed, one DI — and then decide five years from now which you want to use. It just takes too long. If you can imagine a sound in your head, that's what you should be going for from the beginning. I think the reason a lot of records sound so generic now is that everybody has too many options, so they never made a decision to begin

World Radio History

with. I'd rather make a decision up front.

Obviously, your point of view is valid, because you're making hit records. But, the flip side is that it gives you a lot less leeway in the mix.

Yes, it gives you less leeway in the mix, and I don't think that's a bad thing. It's like if you have a band and there's a bass guitar player, a drummer, a guitarist, and a pianist. That's your rhythm section. You don't say, "Well, let's get five different bass players and three different drummers." You say, "This is the rhythm section." I think that the recording should be treated the same way: this is the sound, this is what we're going for, now let's get that sound.

If you can't imagine a sound, then you're really just on a search-and-destroy mission — sort of an experimental, exploratory surgery kind of thing — and then you're just hoping you'll come up with something. The best records — the ones that you're going to want to listen to twenty years later — are the ones where people made decisions, where they were going for a certain sound.

> "THE BEST RECORDS ARE THE ONES WHERE PEOPLE MADE DECISIONS, WHERE THEY WERE GOING FOR A CERTAIN SOUND."

You said that *The History Of Rock* was recorded on a tour bus, but it has a lot of well-recorded live drums.

There are lots of live drums, but a lot of them were cut in a little studio in Detroit after the fact. We would use a drum machine to get beats going, and then we'd do overdubs in Pro Tools, stacking up guitars and things like that. Even though we went into a little studio and added live drums later, the drums you hear on the record were heavily edited — they were put back into the computer and shifted around. So there are tracks where the performance of the drums doesn't bear a lot of resemblance to the way they were originally played.

Do you rely heavily on plug-ins for processing?

Yeah. I don't believe in outboard gear for processing. [*Laughs.*] No, I should take that back: I love outboard processing, but I don't believe in documenting patchbays. I don't believe in writing settings down. Plus, to me, the plug-ins in Pro Tools are very musical sounding; they're very versatile, and I can automate them. It's always nice to have a big, shiny rack of effects, but I'm having a hard time saying that they really sound that much better.

Even things like analog compressors and equalizers?

Analog compressors and EQs do sound really nice, and they're really good on the input of a signal chain. If I had all the time in the world and three assistants, I might use them more, but I don't. These days, I like the consistency that I get from a digital audio workstation. I know that it's going to be the same way next time, and, to me, that's more valuable than some of the esoteric

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Web Link
Visit Michael Bradford's Web site at www.chunkystyle.com.

benefits of using classic outboard gear.

Do you have any special drum miking techniques?

I use fewer mics than a lot of people do. I like to use a kick, a snare, a couple of overheads, and a couple of room mics, but I don't like to closely mic every individual drum. I don't like to put a mic on top and bottom of the toms, and I don't use X-Y or other fancy patterns. I think that a lot of people over-mic drums just because they can. The best sounding drums are pretty much the sound of the drums in the room. My favorite mic technique is, first, picking a studio with a decent-sounding room. And sometimes you need a great-sounding room and there's no way around it. And if you've got a great-sounding room, you don't need as many microphones to get the sound.

What drum mics do you use?

Lately I've been using a lot of CAD mics — dynamic mics for the toms and kick, and some really nice condensers, similar to the AKG 414, that work well as overhead mics. For room mics, I'm at the mercy of whatever the studio has, but if they have some Coles ribbon mics hanging around, I love using those. If they have an [ElectroVoice] RE20, I love using that for a floor tom mic. If they've got a [Sennheiser] 421, I don't mind using that as an alternative kick drum mic. If they've got a [Telefunken] 251, that can be handy if you really need a lot of sizzle.

Do you use the tried-and-true Shure SM57 on the snare?

It's a great sledgehammer. It can take anything and you can't hurt it too much. But it's not my mic of choice — instead, I've been using the CAD TSM411. It's a small dynamic mic and it's good for use up close — you can beat the hell out of it, and it won't die. The '57's work great, too, though.

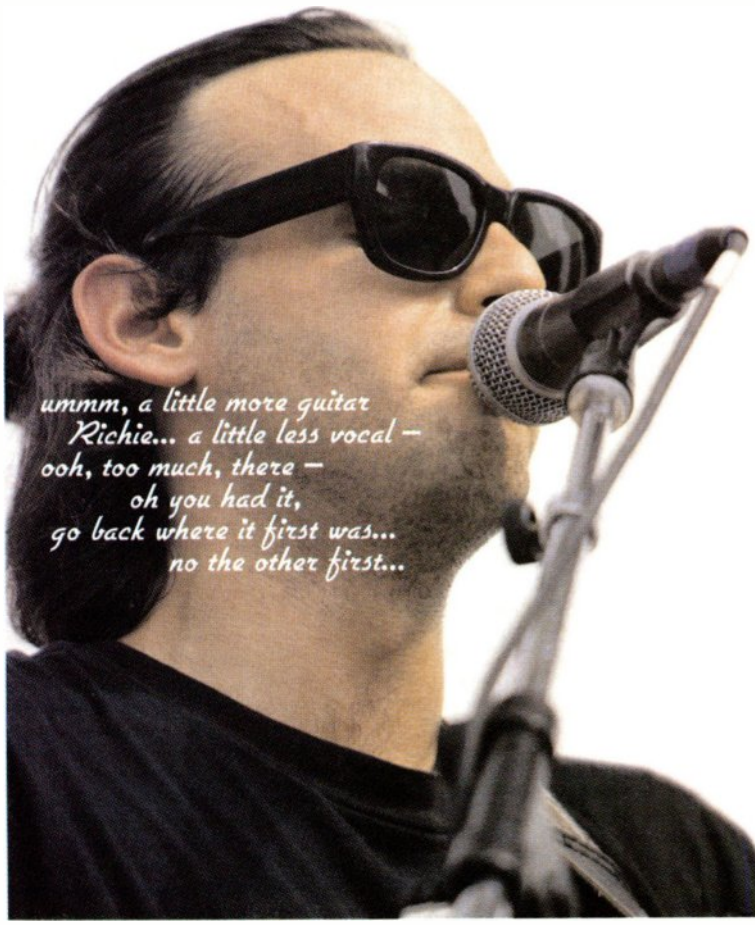
What's your technique for recording guitar?

I use the guitar Pod a lot, because the effects are so good. If I'm miking an amp, I'll tend to use a combination of a '57 up close and maybe a [Neumann] U 47 for the room. If you don't have a good room to record in, you may as well just go direct and add ambience in later.

What are your microphones of choice for vocals?

I'm going to sound like a CAD advertisement, but they've got this new thing called the Vx2. It's got two tubes and variable patterns, and it's one of the best-sounding mics I've ever used for vocals. I've been using it lately with Uncle Kracker, I've used it with Youngstown, I've used it with Meredith Brooks — I really like that mic. I also like any good Neumanns.

Interestingly, if someone's got a thin voice, sometimes I've found that a thinner mic like a '414 actually works for them. A lot of people would go the other



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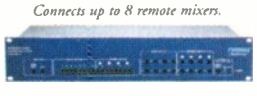

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way, with a heavier duty mic like a Neumann or something, but sometimes, with a reedy voice, something like a '414 captures the reediness — if you're trying to capture them as they sound. Now if you're trying to change them or make them fuller than they really are, you're going for a different proposition.

Another vocal mic that I've used a lot is the [Shure] SM7. I learned about that years ago when I was an assistant engineer working with Gerard Smerek, who recorded Bob Seger and Anita Baker. It's a dynamic mic, so it's got the punch and the impact handling capability of the '57, but, to me, it's a far superior-sounding microphone; it's got lower noise — it's just better all around. It's just about my favorite vocal mic if you have a powerful voice. When we cut *The History Of Rock,* I used the SM7 on Kid Rock's voice most of the time. I also used it on Uncle Kracker, on Anita Baker, on Bob Seger, on a lot of different singers — that shows you how versatile it is.

Do you prefer to assign discrete effects to each track?

For vocals and things like that, I'll send them to a stereo bus and then put the effects on that bus — for instance, a compressor, a reverb, then an [Aphex] Aural Exciter — that might be my vocal chain. I'll end up having all those things going through a bus so that I don't have to replicate the same chain on every channel. Plus, it saves DSP!

It's interesting that you'd place the Aural Exciter *after* the reverb in that chain.

I like sizzle, and I like the reverb to have sizzle, too. If you put the Aural Exciter before the reverb, you get the brightness, but you don't get the reverb excited, and I want the reverb to be as sibilant and as brilliant and shiny as everything else, so I tend to put the Exciter at the end of the chain.

A lot of engineers specialize, but you've been able to work successfully in a lot of different musical genres.

I think it's because I just treat it all like music. It's all about the song. If you start with a really good piece of music and you arrange it and work it out, then the rest of it is fairly easy. All you need is a song.

Howard Massey's latest book, *Behind The Glass,* is now available from Backbeat (Miller-Freeman) Books.

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SONY DMX-R100 DIGITAL MIXING CONSOLE

When Sony's DMX-R100 digital console started shipping last fall, the excitement among audio professionals was almost palpable — was this the small-format digital console we'd all been waiting for?

The board is clearly aimed at pro users, but has been designed for ease of use — within minutes of sitting down in front of it, I was up and running. It did take me a few minutes to get used to the "fingertip" action of the touchscreen, as my "classical guitarist" right-hand fingernails repeatedly betrayed me. Each item on the screen must be separately touched to select it; you can't drag your finger across a range of "buttons" to select them. You can hook a VGA monitor up to the R100; its display will duplicate what's shown on the touchscreen. A QWERTY keyboard and mouse can also be connected, although I felt little need for them.

Any of the 56 inputs can be routed to any destination using the touchscreen; it's equally easy to mult inputs and channels. The first 12 input channels contain phantom power and analog insert points (the only unbalanced connections on the desk), but, there are also eight "floating" inserts that can be routed to any channel or buss.

The control room monitor section provides for monitoring three external stereo sources (one analog, two digital); and supports control of a 5.1 surround monitor system. The headphone amp is clean, but could use a bit more juice. I'd also like to see a way provided for monitoring an external six-channel input for surround referencing.

CHANNELS

Each of the R100's channels has digital and analog trim controls, a polarity switch, delay (in frames, milliseconds, or sample words), eight aux sends (pre- or post-fader, can be paired for stereo sends), a "multitrack" send (pre-EQ, pre-fader, or post-fader), and four-band parametric EQ with additional high- and lowpass filters. The high and low EQ bands can be either peaking or shelving, and the bands can overlap. If you select double sample rate (88.2 or 96 kHz) operation, the range of frequencies the EQ covers will also double — just the thing if you need to add a

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SONY HITS IT BIG WITH THEIR SMALL-FORMAT DIGITAL CONSOLE

BY MICHAEL D. CLUTE, MITCH GALLAGHER, ROGER NICHOLS, & RICH TOZZOLI

couple of dB at 40k. The touchscreen provides a nice graphic display of the EQ.

Each channel also has built-in dynamics; either expander/gate or compressor/ducker. You can key the dynamics off any input or channel, and you're given a great deal of control over the compressor response with a choice of eight knee types. As with the EQ, a nice dynamics graphic display is provided in the touchscreen.

Both the EQ and the dynamics sound great and operate flawlessly. For those of us accustomed to "rationing" DSP, having such on-demand built-in processing is very cool. In addition to the channels, the multitrack outputs and aux sends also have EQ and dynamics.

Each channel has dedicated cut and solo switches that can operate in several modes, and signal present and over LEDs, as well as a bargraph level meter. Channels can be ganged for stereo inputs and grouped in several different ways.

Touching a fader doesn't automatically select a channel (as it does on an 02R); you have to physically select the channel to access it. But once the channel is selected, you can use either hardware knobs/switches or the touchscreen graphics to edit settings.

SURROUND

Surround panning on the DMX-R100 is simply a joy — just use your finger on the touchscreen's graphic panner display to place the signal exactly where you want it or to move the signal around among the speakers. You can individually turn speakers on and off; the jog/shuttle wheel is used to control divergence. There are also nine preset pan positions that you can call up. However, you can't copy surround pan moves between channels or repeat a complex pan move. A bigger limitation is that there's no dedicated LFE send or routing. Currently you can work around this by multing to another channel and using it to feed the LFE. Fixes for these limitations are planned for a future software update.

AUTOMATION

If you've worked with console automation systems, the Sony's will seem familiar to you. The are some eyebrow-raising oddities, such as the lack of offline editing and the way the automation trim mode works, but Sony has fixes slated for these for version 2 of the OS (my review unit had v1.16 installed). But there are also some very handy features, such as Automation Isolate, which lets you exclude certain channels from automation moves so you can ride them manually. Similarly, Function Isolate lets you exclude particular types of data, i.e., EQ parameters, aux send levels, etc. Make Static allows you to erase automation data from specific channels, or from one of the two automation buffers.

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SONY DMX-R100

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LIFE WITH SONY, MY DMX-R100 STORY

I've been using the DMX-R100 for seven months. I've mixed eight album projects on it. With the completion of each project, I was asked where it was mixed. When I say that I mixed on a Sony DMX-R100, the response is always, "You're kidding. This sounds great!" My response is always, "Of course it sounds great. Why shouldn't it?"

MIX, MIX, MIX

I've mixed records on Neves, SSLs, Capricorns, Oxfords, small-format digital consoles, Pro Tools, and Digital Performer. Digital consoles and DAWs are hands-down winners for recall and automation accuracy. Everything goes back to exactly where it was the last time you worked on that song. I've mixed some albums completely in DAWs, but my choice is a hybrid situation. I use the DAW to play back all of the tracks, assigned to individual outputs. Each output goes to a digital input of the Sony DMX-R100. I control the overall levels, EQ, some compression, panning, surround assignments, reverb sends, and the overall dynamic balancing on the DMX. If I need to change the level of a syllable, mute the space between parts of the song, use a plug-ins, or group tracks through a single effect, I do that in the DAW. Overall compression chores, EQ, panning, and automated level rides are done on the Sony.

The EQ on the Sony is amazingly accurate and transparent. The high resolution of the faders (1,024 steps) provides 0.1-dB resolution on level adjustments. Using the hardware EQ in the console frees up the DAW's DSP resources for more important plug-ins that use up more power.

WINDING DOWN

The Sony is a very nice console to use. The faders are absolutely quiet. The color touchscreen is a pleasure. The sound is perfect. And did I mention the touch-sensitive high-resolution faders?

Basically, you can mix 48 tracks plus eight aux returns on the Sony DMX-R100. With a full complement of I/O boards, you can have 32 main digital inputs and then you can route 16 more channels from the tape machine or DAW through the 24 analog inputs (using the 24-bit converters). I routed 16 tracks from my DAW to both the digital inputs and the analog inputs and switched back and forth between them to see if there was a big difference. They sounded exactly the same. The DMX is good.

I now have two DMX-R100 consoles for giant projects. I can mix 64 digital inputs, 32 analog inputs, and eight digital aux returns in a space the size of my desktop. Mix, mix, mix!

QUIRKS AND BUGS

There are some issues with the Sony, but knowing the architecture of the console, and Sony's long-term commitment to the machine, coupled with the overwhelming response from buyers, I have no doubt that Sony will get the software issues under control. The lack of libraries for EQ and compression settings, and the fact that you can't archive mixes to a Mac or PC computer are drawbacks, but after you check out the comments on the Sony DMX-R100 forum (www.dmxr100forum.com), I'm sure you'll agree that the overall response to the console is very positive.

The biggest negative aspect of the Sony DMX-R100 is that it makes me want to own my own OXF-R3 Oxford console. Or should I just get a third DMX-R100?

—Roger Nichols

hold one song (called a "title"). Unfortunately, title settings aren't automatically saved by the board in battery-backed flash RAM. You have to remember to manually save it to flash RAM (or a floppy; other types of storage support are slated for a future release) before powering down. If you forget to save, the board will power on with the last

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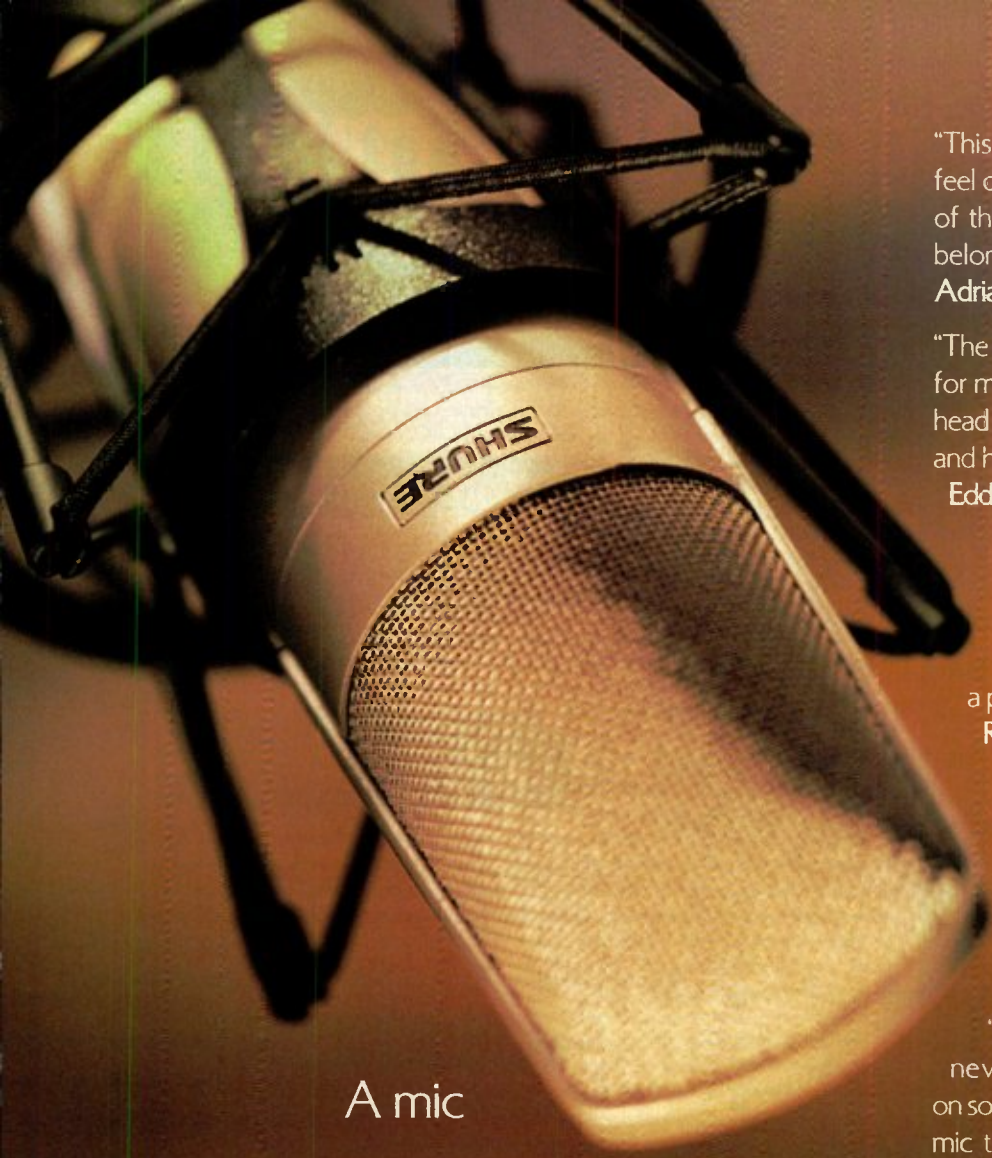

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SONY DMX-R100

DIGITAL MIXING CONSOLE

WHAT ABOUT PREAMPS?

A recent real-world experience truly opened my eyes (and ears) to the Sony DMX-R100 mic preamps — an often-unmentioned asset of the console. The session, recorded in surround at 24 bits/48 kHz, was for an upcoming 333 Entertainment release of the Argentinean flamenco artist Romero. No external preamps were used; we let the console do all the work.

Armed with an arsenal of microphones, including B&K 4006's and 4011's, Earthworks TC-30K's, and Sony C-800G's, we simply plugged the mics into the console and went straight into Pro Tools via AES/EBU. Returning via AES/EBU into the board's digital inputs, we had a straightforward, no-nonsense signal path. The environment was the new live room at the Clubhouse in Rhinebeck, NY.

The results, pardon the cliché, have to be heard to be believed. What I heard standing in front of the instruments is what I heard upon playback afterward. As an engineer, one can't ask for more than that. Even the musicians involved commented on the sonic clarity, and the noise floor was almost non-existent.

The quality of the R100's preamps allowed me to mix most of the session without EQ or compression, except for a six-string fretless bass. Since I also captured room ambiences, only a bare minimum of digital reverb was needed. This is one of the most natural-sounding recordings I've been a part of.

Now, when I look at a DMX-R100, I see not only a great console, but also a built-in rack of first-class preamps. *—Rich Tozzoli*

the faders, separate dim levels for the studio and control room monitor outs, and M/S decoding for stereo channels. Up to 99 cue points can be saved per song, based on timecode locations. These can be dropped in on the fly and individually named. The I/O Status touchscreen page shows you the status of all digital clocks connected to the R100 at a glance (unlocked, locked, or "slipping"). You can also select each clocked device and get further information about its status. Very, very nice.

THE VERDICT

There's no question that Sony has created a monster of a digital console with the DMX-R100. Starting at around $20,000, it's not the least expensive digital board on the market. But, it's comfortably priced for serious users and studios that need a pro-level digital desk — and the bang-for-the-buck ratio is very high.

No it's not quite perfect, but it's close, and its ease of use, flexibility, and excellent sound quality easily make up for any minor flaws — and Sony seems completely committed to updating the software in response to user requests and comments. All in all, the DMX-R100 is an outstanding piece of pro audio equipment. The bar has definitely been raised for small-format digital consoles! *—Mitch Gallagher*

For more information, contact Sony at 800-635-7669 or visit www.sony.com.

WEBLINK

Visit the Sony DMX-R100 forum at www.dmxr100forum.com.

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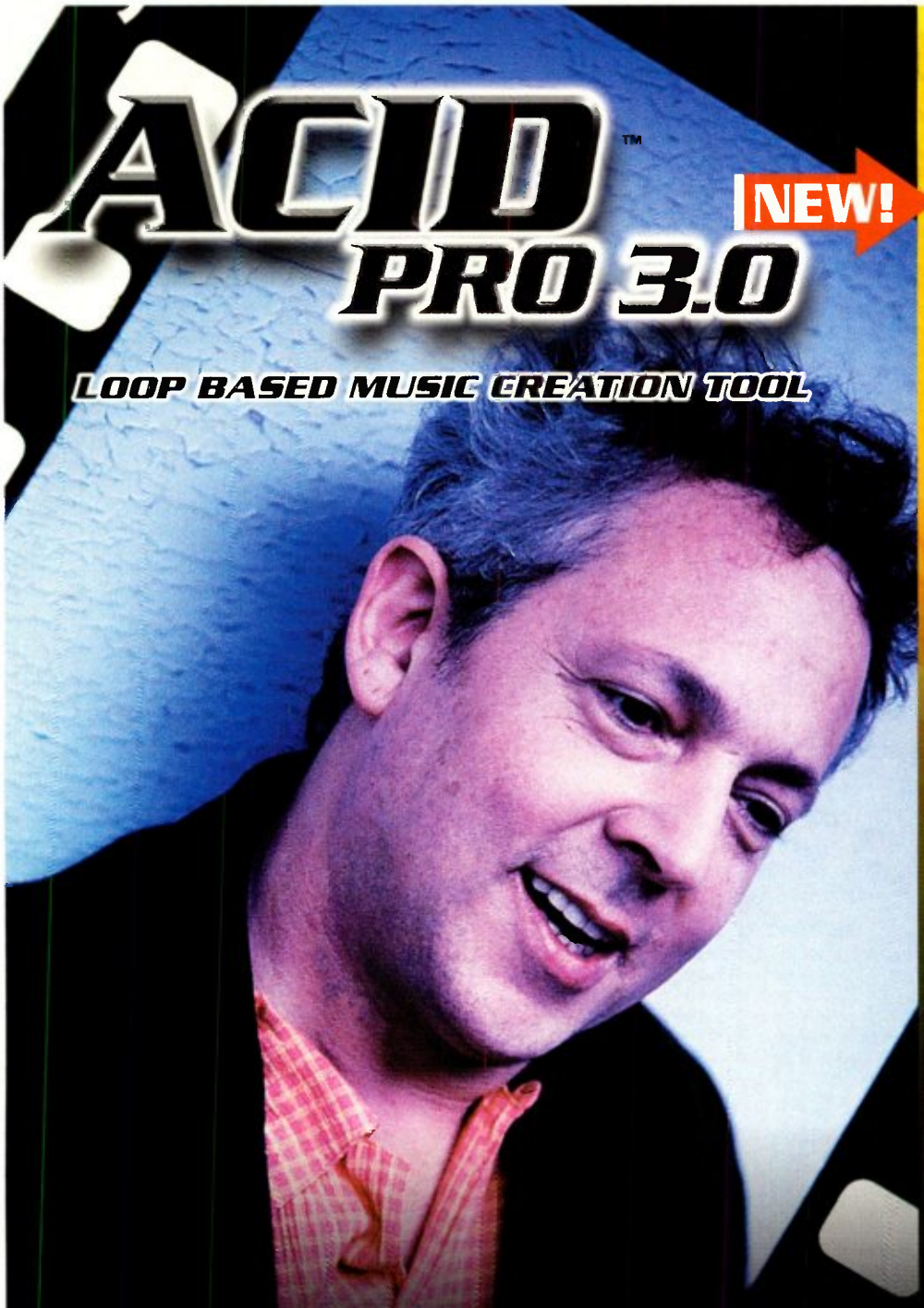

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THE RETURN OF ELO

JEFF LYNNE RECAPTURES THE ELECTRIC LIGHT ORCHESTRA'S "STRANGE MAGIC"

World Radio History

"I JUST FANCIED DOING IT AGAIN," says Jeff Lynne with laddish Brit-rocker understatement. He's talking about his recently released CD, *Zoom,* the first Electric Light Orchestra album in 15 years. Back in the '70s, ELO dominated the pop charts with hits such as "Do Ya," "Strange Magic," "Evil Woman," "Livin' Thing," "Mr. Blue Sky, "Telephone Line," and "Sweet Talking Woman." Lynne — who was ELO's frontman, songwriter, and producer — went on to spend much of the '80s and '90s as a record producer for luminaries such as George Harrison, Paul McCartney, Tom Petty, and Roy Orbison. Together with Bob Dylan, Harrison, Petty, and Orbison, Lynne was also a member of the Traveling Wilburys. But he never abandoned the idea of one day making another ELO album.

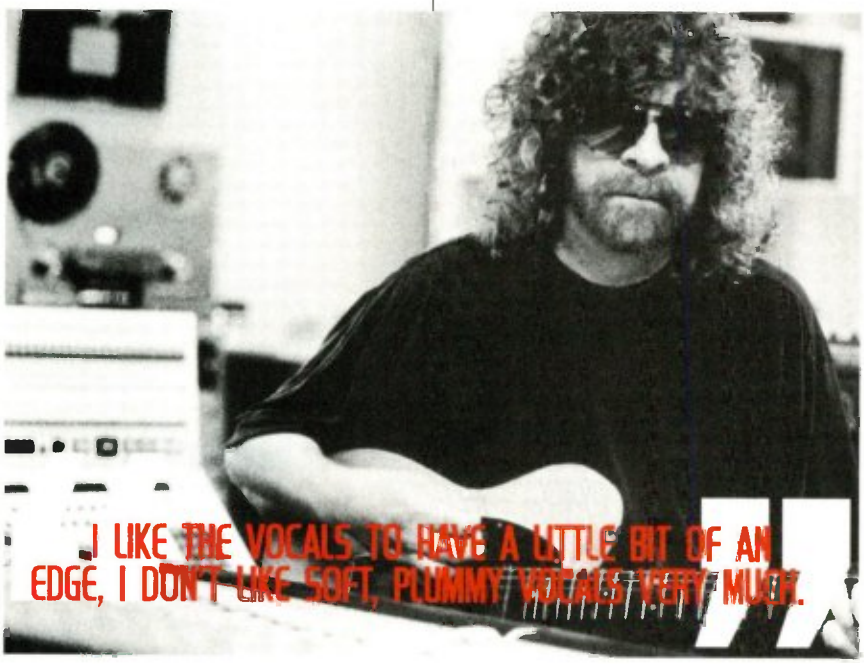
BY ALAN DI PERNA

World Radio History

THE RETURN OF ELO

"I had it all filed away in my head," he says. "I'd been working with all these heroes in music — having a great time producing them and playing with them. That really opened up a whole new world for me. So, after all these years, I've gained a different perspective on ELO, looking at that whole body of work."

All the classic elements of the ELO sound are in place on *Zoom* — the rich vocal harmonies, terse drum sounds, lavish orchestrations, and, of course, those trademark Jeff Lynne melodies and swooping chord changes. While it's a full-fledged ELO album in sound and style, *Zoom* is actually more of a Jeff Lynne solo album. Lynne handled all the vocals and instruments, with a little help from friends such as Ringo Starr, who handled drums on "Moment in Paradise," and George Harrison, who played slide guitar on "A Long Time Gone" and "All She Wanted." As always with an ELO project, Lynne wrote and produced everything.



PHOTOS BY PAMELA SPRINGSTEEN

Zoom was recorded at Lynne's spacious Los Angeles home, which he's made into a kind of dream house for the live-in recordist. "I've got about 10,000 square feet," he says. "I've got this house and I've rebuilt it around the studio. So every room is a recording room. It's pretty cool. I've got this one big room on the side of the house which is enormous —100 feet long, 50 feet wide, and 30 feet high. Basically, you can make something sound as big

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as you want, depending on where you put the mics. If you put them down at the far end of the room, it sounds like it's coming from the next town. And then all the other rooms in the house are wired for eight mics each, plus video lines. They're in the bedrooms, bathrooms...everywhere."

Lynne's control room is based around a Raindirk console. "It's an old English desk, which I like a lot," he says. "It's got a really nice EQ on it." For recording, he alternates between a 24-bit Pro Tools system and two Otari analog 24-track machines. "I'll do a rhythm track on analog and then put the analog over to the Pro Tools," Lynne elaborates. "Then I'll transfer a rough mix back over to analog and do the vocal takes and other overdubs. That way, it's really flexible. I've got 40 channels of Pro Tools, which is great, because I've got a 40-channel desk."

Lynne is an advocate of distant miking instruments. He feels that his distant miking techniques are principally responsible for what people think of as that thuddy, amiably chugging "Jeff Lynne drum sound."

"It's mainly overhead mics — generally about 10 feet away from the kit," he says. "If I'm doing a live take, with everyone playing together in a room, maybe I'll add a bass drum mic and a Shure SM57 or '58 on the snare."

Compression, generally from a UREI 1176, also plays a role in Lynne's distinctive drum sounds. "I do like to compress a snare," he admits. "I like compression overall — just the sound of it. Not to squash something stone dead, but just to give it a kick up the bum."

As for the producer's favorite nook for recording drums, he says, "I've got a little room. It's like a library where I have the drums set up. That seems to be a real nice room for drums. But, then again, I can put them anywhere. I had the drum kit in the great big room, too. Ringo played on the kit and I was really pleased about that. We didn't use a click or anything. It was great fun."

Lynne has come a long way since the early days of ELO, when he received his first U 47 as a gift from the German producer Mack. "It was fantastic," he says — "the posh Beatle mic. I really enjoyed singing into it. But, for the first couple of weeks, I was singing into the back end of it, not realizing what I was doing. When I finally got it turned around right, it was like, 'Aw, sh*t!' It was just this marvelous, full-blooded sound. Tons of bass. Tons of top."

These days, Lynne prefers a U 87 for his voice. But he sang the lead vocal for one of *Zoom*'s songs, "Melting In the Sun," through the built-in mic on a Sony Walkman. "We took the signal straight out the earphone jack and into the desk," he says. "Just to see if we could get that old-fashioned distortion on a vocal. There's a certain sound you get on a lot of old records, like Little Richard, where he's just blasting the mic to pieces. His voice is so loud and you get that fantastic edge — valve distortion. Of course, this is not quite the same because the Sony Walkman is a transistor device. But it certainly is slightly distorted."

▶ continued on page 142

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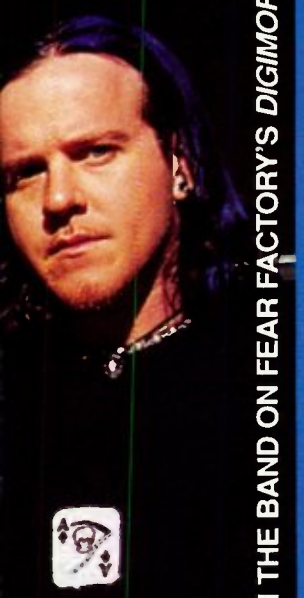

The line between the musicians and the producer may often be blurred on a recording project. Very often musicians themselves, the producer and the engineer contribute instrumentally or vocally to the sessions. Musicians, eager to learn the tools of their trade, may become more involved in the engineering and production side of things. The result can be a collaboration that removes the glass wall between artist and producer.

Fear Factory's latest project, *Digimortal,* is a good example of how an album can be the result of such an extensive collaboration. The band called on musician friends to help them achieve the sounds they wanted during the tracking sessions. Their producer, a musician, contributed heavily to the songs, while also bringing in an experienced engineer and a Pro Tools expert to round out the production team. The finished product is undoubtedly stronger for the partnership.

Rhys Fulber is a musician-turned-producer with an impressive track record of over two dozen album releases, many of them emanating from his former Vancouver, Canada base, including Front Line Assembly, Delerium, Intermix, and Noise Unit. Fulber has also been called in as a keyboard programmer and remixer on a host of projects, working with producers such as David Foster and bands such as Biohazard, Skinny Puppy, and Mötley Crüe. In 1992, he began an association with Fear Factory that has made him a virtual fifth member of the band.

Fear Factory's latest release is Fulber's third record with the band, and the second on which he has both produced and played. To further assist with the production on the latest project, Fulber brought Mike Plotnikoff onboard. An experienced engineer and mixer, Vancouver-based Plotnikoff was Bruce Fairbairn's engineer for many years, working with Aerosmith, Van Halen, and the Cranberries, as well as with Fulber on a number of his previous projects.

Fulber's involvement started at the very beginning of the *Digimortal* project, before the band began tracking at Ocean in Burbank, California. "I was with the band in preproduction, where it's just us and the rehearsal studio, going through the songs and trying to make them better," explains Fulber. "Then, we recorded some demos, so we got even more of an idea of what it sounded like when it was tracked. We had a pretty clear idea of what we wanted to do, then we just went

BY STEVE HARVEY

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into Ocean and put it all on tape."

The tracking process was totally analog, through the studio's classic Neve console to a Studer A800 multitrack machine loaded with BASF 900 tape. Getting around the limited capabilities of the older equipment caused some headaches. Fulber reports: "The sounds you get on tape are great, but the whole process is kind of long-winded."

Plotnikoff kept the tracking process as simple as possible, relying on the optimum combination of equipment and microphone placement, while steering clear of signal processing. "We spent a lot of time going through different [speaker] cabinets and mic positions," recalls Plotnikoff. "The only time I really used EQ and compression was on the clean guitar, to warm it up. Once in a while, I'd bump up the mids a little bit — a dB or two, around 800 Hz.

"We used [Shure SM]57's on the guitars through the Neve. Dino [Cazares] plays Line 6 heads, which sound great. We really spent a lot of time getting the guitar sounds. Reggie Boyd, who helped with the guitar sounds, knows Line 6 inside out, and is a great guitar player, so he helped with tweaking the amps. We ended up going to a 2x12 instead of a 4x12."

Christian Olde Wolbers's bass sound was a combination of signals. Plotnikoff elaborates: "We used three different amps — one that was a sub, an old Ampeg SVT head for a more distorted sound, and then we went through a SansAmp and through a cabinet for a third sound. There's no DI on this record, everything is miked.

"We spent time in the studio working on different tones, different basses, EQ, and Christian's bass head to get the best possible sound so everything would sound tight. Having the tightness in the low end without sounding muddy was the goal — sometimes when you put in all that low end, they're tuned so low it gets muddy. So keeping the bass tight was a bit of a trick."

"These guys have pretty good sounds just standing in a rehearsal studio," comments Fulber. "It's just a question of refining it and capturing it. They have good guitars, and that helps a lot. The band can pull it off. This is what they do; this is how they sound when they're on stage. It's just refining it for the recordings."

Bringing in yet another collaborator, Greg Collins, an experienced Pro Tools programmer, the tapes were dumped over to Pro Tools and the project entered its next phase. "We've been doing a lot of editing, because people keep coming up with ideas," comments Fulber. "The songs are always being worked on, right to the bitter end. The beauty of this album all being in Pro Tools — the beauty and the beast of it for that matter — is that we can just keep trying things and improving the

DIGIMORTALS: Rhys Fulber (behind console), Fear Factory's Dino Cazares (with guitar), and Mike Plotnikoff at Ocean in Burbank.

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songs. The downside is that something simple can take all day."

Commenting on the mix sessions at Sol Seven Studio in Sherman Oaks, CA, Fulber states, "We've got a great setup going here. Mike's in here mixing. Greg Collins is in the other room editing, and then I have my programming room. We had the same thing going at Ocean; we had Greg in a separate room editing the whole time. I'm always working on keyboards and programming and other sounds. I'll do a bunch of stuff and then it goes through the committee."

He continues, "It's usually just little accents on what's already there. It's not like the keyboards and programming take over the record. They're important in the sense that they highlight what the band is playing. Putting some keyboards behind choruses make the vocals and guitar appear more melodic and they can jump out more. This probably has more programming than any Fear Factory record, though people may not realize it."

Having the basic tracks in Pro Tools allowed the production team to refine the performances. "They're a tight band," comments Fulber. For those unfamiliar with the band's particular brand of heavy metal, it's often punctuated by rapid-fire staccato rhythms played at superhuman speed. "Even though we went in and edited, [drummer] Raymond [Herrera] is right on the click. And he always plays triggers; that's the sound he likes. They play it pretty much that way already, but we'll sometimes take one part that's particularly perfect and do some things here and there. The band wants it to be absolutely spot on."

Adds Plotnikoff, "We'd spend a whole day on a guitar to get it that tight. Rhys would be super-picky, and we'd look at it bar by bar. If you've got a sloppy guitar track, you can't edit it that tight, no matter who you have on Pro Tools. You can only do so much."

Having the performances available on Pro Tools also allowed the team to indulge in some sound design. For example, says Plotnikoff, "We'd tape three or four real snare drums and make one out of it. Same with kicks — whatever works for the song."

The setup also made it easy for Fulber to produce some interesting vocal effects: "We've been messing around with the vocals, doing little edits. You hear a vocal performance and it turns into something that sounds like a sample and then it's twisting around — you don't really know what's going on. It still has the emotion in there and then something completely mechanized, then back into the voice. That's something we've wanted to do with the band for a while.

"I'll just take a section of the vocal, put it in my [Emu] Emulator and mess with it. When you do vocal things in Pro Tools, they tend to have a choppy feel. If you use a computer and a sampler, you can get a lot more musical. We've been doing stuff like that, flying stuff to the sampler and back. We've done that with some of the guitars, adding filtering and things. It's a technique I've used for a while, but I have never applied it with live playing as much as I have now."

Summing up, Fulber says, "I'm learning all the time. It's not an easy thing to do sometimes, and it's a long process. This is the first record where I'm starting to say, 'Okay, I'm seeing how this works!'" ■

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Producer Walter Afanasieff (left) and chief engineer David Gleeson at the Sony Oxford console at Wally World.

It's a Digital World

Legendary Audio Producer Walter Afanasieff Invests in Oxford and DMX-R100 Consoles

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Sony Electronics Introduces SRP-X351P Powered Mixer

Sony Electronics has debuted the SRP-X351P powered mixer. The new audio/video mixer power amplifier is designed for a wide range of

applications ranging from corporate boardrooms and conference rooms to houses of worship and sports/karaoke bars.

"The SRP-X351P incorporates a number of powerful features," reports Paul Foschino, marketing manager for professional audio products of Sony Electronics' Broadcast and Professional Company. "Cost-effective and flexible, the unit incorporates many the key elements of an outstanding presentation system within a rugged, compact design. A particular strong point of the X351P is a built-in audio/video switcher that facilitates easy selection of a video source and its corresponding audio."

The SRP-X351P also offers four balanced XLR mic channels with switchable 48V phantom power, three stereo line inputs, and stereo and master record outputs. It also includes echo send and mic group outs, which allow for flexible system configuration and easy expansion. Two plug-in slots, located on the back of the unit, can accommodate Sony's UHF tuner modules (WRU-801A or WRU-806A) with a built-in antenna divider.

Additional key features include:

- master inserts (allow insert of various signal processor options to be used on the main master or mic group);
- comprehensive remote functions: supplied wireless remote control, RS-232C remote interface and Control-S in/out;
- simple front-panel controls;
- 170W per channel power section; and
- compact, rack-mount chassis (standard 19-inch rack mount and 3U high).

The SRP-X351P is available for a suggested list price of $1,299.

Sony Pro Audio Hosts DMX-R100 Open Houses in N.Y.C. & L.A.

Sony Professional Audio recently hosted DMX-R100 open houses in New York and Los Angeles as part of a series of events designed to familiarize industry pros with the powerful new digital mixing console. Over 500 units have been sold to leading recording studios, broadcast facilities, production and multimedia houses, and live clubs around the world since the unit began shipping in October 2000.

In L.A., pictured (l-r) at the R100 are producer Bruce Botnick, Hideyo Takeuchi, president of Sony Sound Communications, Inc., and Brant Biles, partner at Bob Margouleff's Mi Casa Multimedia.

At the console during the NY open house at the Sony 550 Madison Ave. Oxford Demo Suite are: James Ryan, Rampage Music (left) and Sony Professional Audio regional manager Andy Munitz. Pictured left-to-right at rear are: Don Sternecker, Mix-O-Lydian Studios; Jeff Peterson, Howard Schwartz Recording; Paul Avgerinos, Unicorn; Jim Mageras, Surroundedby Entertainment; Fritz Lang, Metropical Studios; Sony regional manager Tim Derwallis (standing); Peter Buccellato and Paul Weisz, Lower East Side Studios; and Luke Furr, president, Bay Roads Marketing.

World Radio History

LAUNCH Media Selects Sony DMX-R100 Consoles

LAUNCH Media, Inc. (Santa Monica, Calif.) has purchased two Sony DMX-R100 digital consoles for their new production studios in New York City. The first R100, which went online in late February, is being used to record and produce exclusive artist interviews and performances. The second board is slated to go online in late spring. The company's multimedia innovations includes LAUNCH.com, a popular Web site that provides visitors with a wide selection of streaming audio, the Web's largest collection of music videos, artist features, and music news, and LAUNCH on CD-ROM, which features music performances and interviews users can control in an unique, interactive environment. In addition, LAUNCH syndicates its audio, music, and entertainment content through LAUNCH Radio Networks to over 1000 radio stations across the country.

LAUNCH Media audio engineer David "Mager" Lacey at one of the company's two new Sony DMX-R100 consoles.

"The R100 helps with all the content we produce in New York," describes Ian Dittbrenner, director of audio at LAUNCH Media. "We use the board for everything from Pro Tools production to tracking talent via ISDN for relays to studio interviews and performances. The console has proven itself, and we are impressed by its ease-of-use, sonic clarity, DSP, memory, recall of snapshots, and EQ/dynamic range.

"The flexibility of the R100's internal routing has enhanced the way we work," continues Dittbrenner. "The snapshot automation allows us to juggle various projects simultaneously, and we can run it all from the touch panel. The board has helped increase our productivity and allows us to work with a tighter production staff. Sony also offers incredible support for their products. They listen to suggestions, and that makes us confident that the features we will need in the future will be added."

LAUNCH's audio engineer in New York, David "Mager" Lacey, has already used the R100 to record a vast array of interviews with a variety of high profile artists.

"The R100's flexibility and strong feature-set makes it a perfect tool for a creatively diverse company like LAUNCH Media," comments Courtney Spencer, vice president of professional audio products at Sony Electronics' Broadcast and Professional Company. "We are pleased that the console is being used on such progressive multimedia ventures."

L.A. Studios Upgrades with Sony DMX-R100

Implementing the first step in a two-year plan to upgrade and renovate each of its six audio suites, L.A. Studios has chosen a Sony DMX-R100 digital console for Studio D. Scheduled for installation in the spring, the R100 will be operated by engineer Paul McGrath and used on a variety of short- and long-form projects for major motion picture studios and advertising agencies.

L.A. Studios president Jesse Meli and chief technical advisor Keith Scheyving saw a prototype of the R100 at last year's NAB, and have continued to monitor the board's progress. "It sounds great," comments Meli. "And its compact design will afford us additional space to make our rooms more video friendly for our clients. The R100 is currently set up in our tech shop so that our engineers can totally familiarize themselves with it. It seems to be a hit."

"The R100 has a good monitoring section and more aux sends than most digital consoles," adds Scheyving. "Overall, it's a really flexible board with an incredible built-in router. It provides superior automation that works well with our Pro Tools™ systems. This is critical because we do a lot of remote recording to ISDN."

"Paul [McGrath] loves the R100," concludes Meli. "If he could run a session from the shop right now, he would. If everything goes as well as expected, we will investigate purchasing multiple units."

"L.A. Studios is a leader in the audio postproduction industry, and we are extremely pleased with their decision to purchase an R100," adds Courtney Spencer, vice president of professional audio products at Sony Electronics' Broadcast and Professional Company. "The console's flexibility and ease-of-use makes it a perfect choice for a facility that services such a wide spectrum of demanding clients."

World Radio History

Public Displays of Affection

KUHT audio specialist Douglas Robertson at the Sony DMX-R100 console.

KUHT/Houston Public Television loves the DMX-R100 so much that they bought three of them.

KUHT/Houston Public Television, the first non-commercial television station in the U.S., has purchased three Sony DMX-R100 digital consoles for its new facility on the University of Houston campus. The first R100 is currently online in the complex's Studio 1 production room. A second unit is slated to go online this summer in another production suite, and the third R100 will be used in an audio sweetening postproduction studio scheduled for construction in the fall.

"We desperately needed to upgrade our audio mixing equipment," reveals Andy Anderson, director of engineering and operations at KUHT, which broadcasts a daily news/public affairs show as well as documentaries, live programming, membership drives, and other productions. "We chose the R100 because it was cost-effective, compact, and offered a great deal of capability. The fact that the console has 48 inputs assured us that it would meet all our requirements. We also needed a unit that had limiting/compression on all the channels."

"The R100 is a dream," states Douglas Robertson, audio specialist at KUHT. "The first of our three boards replaced a digitally controlled analog board from another manufacturer. Right off the bat, the R100's footprint was smaller than the control surface of the original console, not to mention its eight-foot rack of mixer electronics and switch points."

According to Robertson, PBS affiliates are often caught in the conundrum of adhering to the highest broadcast standards and the lowest broadcast budgets. "The R100 solved this problem," he explains. "We bought three for less than the base, no frills price of any of the all-analog industry standard broadcast mixers available today. We could have bought six for the cost of competitive digital mixers. The R100's extensive feature-set, which includes dedicated, simultaneous 5.1 and stereo monitoring and mixing, 9-pin machine control, input and output routing matrixes, and snapshot and dynamic automation, would have cost extra. Plus some of the options, like delay per channel, might not have been available at all."

Robertson describes himself as an audio department of one: "Frankly, most of the actual audio assignments are accomplished by employees whose reason for living is not audio," he explains. "Usually, I design the setup, do the install, train the assigned operator, and move on to the next project. The snapshot automation in the R100, combined with the input and output router, eliminates the need for operators to do complex patching, troubleshooting, and setups on their own. They just call up the snapshot and go right to mic and playback source checks.

"In addition," Robertson elaborates, "there is plenty of memory for operators to customize their own snapshots. With the built-in floppy, they will be able to export those setups to other R100's as they come online. So, instead of having to train operators and producers on the distinctions between different boards and dealing with the preference of one control room over another, I only have to train an operator on one mixer and they're good to go on any air board in the plant."

Referring to the flexibility of the aux bus control as "nothing short of revolutionary," Robertson is "thrilled" that mix minuses are no longer complex thought experiments. "Inherited from the big brother Oxford, you can call up the bus on the faders, turn up the ones you want the talent to hear, pull out the talent's channel and anything else you don't want to send, and you're done," he states. "The comprehensive talkback features make cueing talent through the mix minus bus super simple.

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Late Night With Sony Oxford

NBC recently installed a Sony OXF-R3 Oxford digital console in its Studio 6A's music room — the home of *Late Night with Conan O'Brien* — at NBC's 30 Rockefeller Plaza headquarters in New York City.

"We are extremely pleased that NBC has recognized the benefits the Oxford console will provide for the production of the Conan O'Brien show," says Courtney Spencer, vice president of professional audio products at Sony Electronics' Broadcast and Professional Company. "The Oxford's efficient user interface should be a perfect match for the fast-paced production capabilities this show requires."

The following is a Q&A with Jim Starzynski, principal engineer, audio technologies and practices, NBC technical planning and engineering.

NBC engineer Jim Starzynski (center) with Sony's Andy Munitz (left) and Sony's Terry Murphy in the NBC Oxford console suite.

SOUNDBYTE: Why did NBC choose the Oxford console?

JIM STARZYNSKI: The Oxford was one of a handful of consoles that were in the running for installation in the Studio 6A Music Room. It replaced a top-end analog console that had served us well for years. The Oxford digital console brought us the enhanced features we were interested in.

Oxford had also established a firm track record in the recording business and with mobile units. This, along with a positive experience with another Oxford during the surround sound DTV broadcast of an All-Star Game in February 2000, helped make our decision easier.

What benefits does a late-night live show derive from having an Oxford?

Snapshot resetability helps us by allowing instantaneous setups between rehearsal and air. Instant recalls also allow customized settings for a particular band that previously had to be accomplished on different sections of the console. Now each and every mix can occur from the sweet spot of the console.

How is the automation used in this live setting?

Resetability is used all the time to change setups from band to band. Dynamic automation is used to integrate dialog and audience microphones from the main broadcast mix if a band remix is required in postproduction. This capability is a step beyond what we were used to with our previous analog console, and it speeds up the entire show's production process tremendously.

What specific features does NBC like about the console?

The dynamics section of the console is well thought out, and virtually all the features within it are easily accessible by the mixing engineer. Every function can be easily adjusted, without having to page through anything, and requires minimal button pushing.

Discuss the instant total recall capabilities and how it applies to the show and the bands.

We can easily store mixes and recall different setups by just toggling through memories. Stored macros make this really fast and easy to do. This type of resetability makes a complete board reconfiguration almost instantaneous.

Was the board customized for any specific video/television requirements?

Because we have an external communication system in the studio, we were able to work with Sony on a modification to the talkback section. This change let us use the talkback buttons to engage a video monitoring switcher to change the input to the picture displays in the room.

The console is also set up to read and display "time of day" timecode while still being able to handle specific timecode played back from a multitrack session.

How much of the onboard compression/EQ is used?

Almost every channel's dynamics section is used. Because of this, there's little need for the master compressor on the 2-mix at the main output of the console. The gates come in very handy, as well as the compressors. The dynamics section is one of the best thought-out features of the console.

The panels are well-designed, easy to reach and control, and the electronics are clean.

Why is it superior to the previous console?

The architecture of a digital console allows a lot more to happen in a smaller space requirement than could ever be achieved on any analog console. The mixing engineer can sit in the optimum monitoring position and still access the controls that are necessary to do anything to a particular mix.

Snapshot recall is a welcome feature that was not available to us on our previous desk. The sound quality we're now achieving is

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World Radio History

Oxford 3.0 Arrives

Important upgrade enhances surround capabilities and much more.

The next generation of Sony's Oxford OXF-R3 digital audio console was unveiled at the NAB show, held April 21-26 in Las Vegas, in the Sony Demo Center, Room N109.

"World-class users have come to appreciate the enormous power and flexibility of the Oxford," states Courtney Spencer, vice president of professional audio products at Sony Electronics' Broadcast and Professional Company. "Now, with the upgrade to Version 3.0, we're offering significant new features that amplify the console's capabilities, including the widening of the main program bus from two to eight channels to streamline surround recording and mixing, while leaving the multitrack busses available for other uses. Each channel now has automated joystick panning to the program bus as well as to the existing multitrack busses."

A key feature of the 3.0 upgrade is a new monitor panel that supports convenient monitoring of stereo, LCRS, 5.1, and 7.1 formats. An innovative "fold-down" capability allows users to execute quick down mixes from one program format to another, or to check for compatibility.

Version 3.0 also features the addition of super send groups that allow for flexible grouping into mono, stereo, LCRS, 5.1, and 7.1. Each group send can have its own independent fader and joystick to facilitate simultaneous 5.1, 7.1, LCRS, and stereo mixes. The super send groups supplement the existing 24 auxiliary sends on each channel.

Reinforcing the Oxford's flexibility and assignability, the board has a comprehensive internal digital patchbay that allows input and output signals to be easily assigned to the processing channels as needed. On a session-by-session basis, this routing can be called up instantaneously.

The Oxford also comes standard with features such as four types of 5-band EQ per channel; a comprehensive dynamics section, including three types of compressors on every channel; 1.2 seconds of programmable delay per channel; multi-stem recording and monitoring; and 48 multitrack busses.

"Virtually everything about an Oxford — all routing and every setting for every channel — gets recalled in a quarter-of-a-second," Spencer adds. "In a live television broadcast setting, for example, the entire setup for a guest band could be recalled instantly with the engineers ready and waiting for the commercial break to end."

> "You can configure an Oxford console across a very wide range of capabilities and sizes..."

Sony works closely with every Oxford client to optimize (and customize) their individual console configurations. The I/O racks that house the interface cards for these consoles allow each facility to load in their unique A/D, D/A, and AES/EBU requirements.

"You can configure an Oxford console across a very wide range of capabilities and sizes," comments Spencer. "A post house may need only a few mic inputs with a dozen AES/EBU I/Os, while a tracking facility may need a very large number of mic inputs and AES/EBU I/Os to interface with all their outboard gear."

There are two control panel options. Smaller facilities seeking to keep the console size to a minimum could use the smaller control surface, which offers 24 addressable channel faders and 17 master section faders, all in a compact package. The larger configurations all feature 48 addressable channel faders in conjunction with the master section.

Oxford 3.0 will be available fall of 2001.

Oxford 3.0 Arrives

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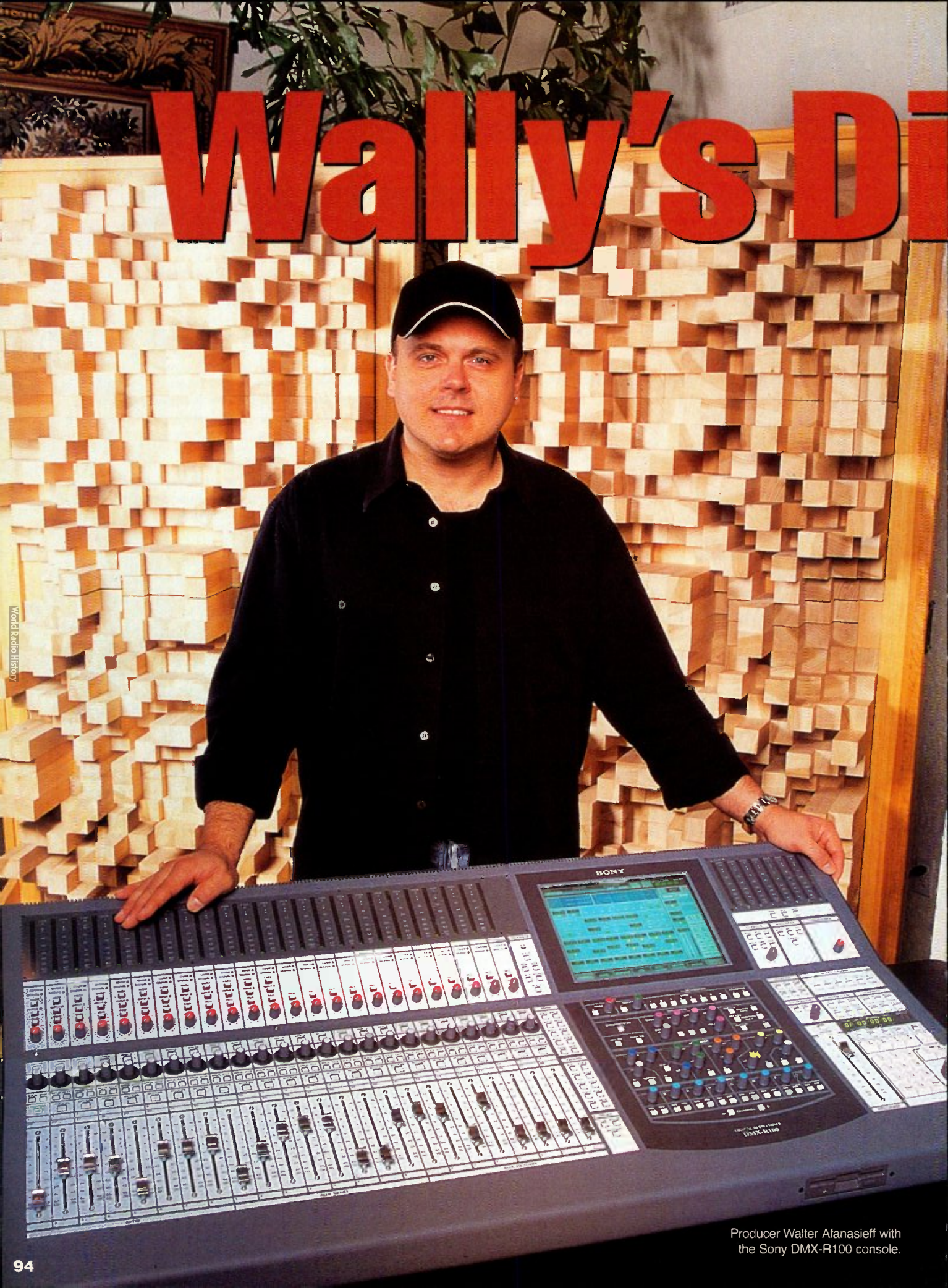

Producer Walter Afanasieff with the Sony DMX-R100 console.

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gital World

Legendary producer Walter Afanasieff chooses Sony Oxford for his studio, as well as three DMX-R100's for his other projects.

Veteran producer Walter Afanasieff (a.k.a. Walter A) has installed a Sony OXF-R3 Oxford console in his state-of-the-art Wally World Studio B in San Rafael, CA. Chief engineer David Gleeson reveals that the Oxford installation is the final stage of an 18-month-long facility upgrade.

"One of the things we have always struggled to achieve during programming is the ability to do a quick changeover from one song to another," Gleeson says. "The Oxford's total recall and instant resetability provides us with a seamless and efficient working environment.

Producer Walter Afanasieff (left) and chief engineer David Gleeson at the Sony Oxford console at Wally World.

"The Oxford's digital I/Os will play a key role in integrating digital audio throughout the facility. We use a lot of different sources for multitrack recording," Gleeson continues. "In the past, it has been difficult to integrate the systems to archive material or transfer recordings from one medium to another. The Oxford will really facilitate these tasks."

"Having been a producer for a number of years, I have become really familiar with the quality of Sony's products and pro audio team," Walter A comments. "I've worked with the Oxford at other high-end studios and on a number of projects with engineer Mick Guzauski. The Oxford's performance inspired me to get my own. Now, Mick and I can mix in tandem, and the need to be in two places at one time will dissolve."

A multi-platinum producer/writer whose credits include Mariah Carey, Savage Garden, and Ricky Martin, Walter A has also purchased three Sony DMX-R100 digital consoles. Two will be used in his studio's songwriting MIDI Pro Tools™ suites. "We wanted a compact high-end digital console, and the R100 is a powerful and versatile unit that can perfectly accommodate a small room," he explains.

Walter A's third Sony DMX R-100 will be housed in Moomba, a new club in Los Angeles, where he is a partner. The intimate (300-person occupancy) venue will feature DJs, live band record company showcases, 5.1 film viewing, stand-up comedy, and many other live performances. The R100 will be used for monitoring and front-of-house live sound mixing, for playback in 5.1 surround, and for a wide range of A/V applications.

"It's a demanding environment," Gleeson says. "Walter needed a system capable of switching rapidly back and forth from one application to another. The R100 has proven its ability to do just that."

"We'll also be installing a high-end Sony camera system," Walter A concludes. "Moomba will give up-and-coming artists a chance to express themselves in a state-of-the-art environment. We hope to discover the next crop of major artists."

"Walter A is an extremely prolific and highly respected producer," adds Courtney Spencer, vice president of professional audio products at Sony Electronics' Broadcast and Professional Company. "His choice of both an Oxford and three R100's is a clear indication of the increasingly meaningful role these consoles are now playing in our industry."

World Radio History

L.A. Recording Workshop Looks to Sony for Digital Future

The Los Angeles Recording Workshop, a North Hollywood-based state-of-the-art educational facility specializing in studio engineering, digital video editing, and film production, has made a major investment in Sony digital technology. In addition to installing an Oxford OXF-R3 and five DMX-R100 digital consoles, the school has purchased a DRE-S777 digital sampling reverb and a PCM 3348 digital recorder.

is an integral element of the school's recording engineer program, which was recently expanded from 600 to 900 hours.

Four R100's have been installed in the Los Angeles Recording Workshop's Sony Lab (pictured left). The fifth board is set up in a 5.1 surround sound-capable studio with a recording room and isolation booth. "Students can start an assignment in the lab, burn their recording on a DVD-RAM, and then take their tracks to the Sony R100 studio to continue the project," explains Knight. "The board is powerful and cost-effective, and its sonic clarity and flexibility are incredible. It was the only choice for us."

Pictured at the Oxford is Los Angeles Recording Workshop director Christopher Knight (right). According to Knight, the advanced section of the Los Angeles Recording Workshop program focuses on digital mixing in the school's recently constructed Sony Oxford suite. The new Sony gear

Late Night with Sony

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outstanding. It's so good that it's minimizing the amount of EQ required on individual sources and the overall mix.

Any final comments?

The overall experience has been a positive one. The sound of the digital console is excellent, rivaling any high-end console we considered whether it was analog or digital.

We've been particularly pleased with the transition from the analog platform we were used to. The Oxford accommodates this move by offering digital enhancements while still retaining some of the important familiarities akin to an analog control surface.

Public Displays of Affection

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"Here at Houston PBS, we don't do cookie-cutter news shows," concludes Robertson. "We live for change. The R100's astonishing simplicity and flexibility make studio turnovers, pledge drives, station events, and music tapings a pleasure for the ears — not a headache for the sound guy. In the same week I installed our first R100, we went right into our Million Dollar March, the linchpin of our pledge drive and fund-raising efforts. I mixed the first evening with minimal error and handed off to the next two operators to do the following days. The R100 worked beautifully. Everything sounded clean and loud."

"We were impressed by [Sony regional audio manager] Art Gonzales's R100 demonstration at a SMPTE meeting awhile back," Anderson adds. "A true all-purpose board, the R100 meets our needs throughout the station."

"We're extremely pleased that KUHT/Houston Public Television has chosen the R100," comments Courtney Spencer, vice president of professional audio products at Sony Electronics' Broadcast and Professional Company. "The variety of applications they plan to engage it for underscores its versatile functionality. In terms of both cost and flexibility, the R100 is a great fit for KUHT's multifaceted operation."

SoundByte: The Sony Pro Audio Newsmagazine is published quarterly by Sony Electronics Inc. in association with MP&A Custom Publishing, a division of United Entertainment Media. **Editorial Director:** Anthony P. Montesano; **Managing Editor:** Anthony Savona; **Art Director:** Marshall Moseley; **Associate Art Director:** Greg Gennaro; **Cover Photo:** Steve Jennings; **Photo Credits:** Pg. 3, (bottom right) Howard Sherman; Pg. 4, Courtesy of LAUNCH Media. Used with permission; Pg. 5, Courtesy of KUHT. Used with permission; Pg.6, Howard Sherman; Pg. 8-9, Steve Jennings. **Editorial Office:** 6 Manhasset Ave, Port Washington, NY 11050. Ph: 516-944-5940; Fax: 516-767-1745; Entire contents Copyright© 2001 Sony Electronics Inc. unless otherwise noted. The opinions expressed in bylined articles herein represent those of the author alone and not of Sony. No part of the publication may be reproduced without the written permission of Sony Electronics Inc. Sony, Super Bit Mapping, CD Text and Memory Stick are trademarks of Sony. For more information on any of the Sony products mentioned in this magazine, please contact: Sony Pro Audio at 1-800-686-SONY. Product features and specifications subject to change without notice. **MP&A Custom Publishing, a division of United Entertainment Media — President:** Paul Gallo; **Senior Vice President:** Marty Porter; **General Manager:** Kathleen Mackay; **Director:** Anthony P. Montesano.

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SONY

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World Radio History

BY CRAIG ANDERTON

EQ'S GUIDE TO SELECTING THE BEST CONTROL SURFACE FOR YOUR NEEDS

CHOOSING THE RIGHT CONTROL SURFACE

There are two main control surface families: *general-purpose* controllers designed to work with a wide range of gear, and *dedicated* controllers that work with a specific piece of software. In general, the latter give the best user experience because of each control's specificity, but will likely be more expensive. And, if you decide to change to a different program, the controller may not be able to follow you.

General purpose interfaces start with budget models that have, for example, eight assignable MIDI knobs or faders. Programming these may be a tedious affair involving button presses, or a painless one if there's a "learn" function (where you send the unit the controller you want it to transmit). Or there may be accessory software for programming the device. Not all general-purpose devices are simple; on a novice/intermediate level, Peavey's PC-1600 family offers sixteen faders and buttons, whereas, at the high end, Mixed Logic Studio Electronics offers the M242, a $4,000 control surface with 24 faders, 53 rotary encoders, and more.

Here are a few tips to remember as you seek the right interface:

- Check any general-purpose control surfaces for availability of presets or templates that apply to your gear, so you don't have to program your own from scratch.
- Some systems, such as Emu's PARIS, include a control surface as part of the system. This guarantees tight integration.
- Support is a two-way street — not only do control surfaces support software, software sometimes needs to support control surfaces.
- Your existing equipment may do the job. Several digital mixers include a MIDI fader layer that can be programmed to send out controller information and sometimes even Sys-Ex messages. Keyboards are getting into the act, too: Yamaha's new Motif series has templates for control of several popular sequencing programs. For relatively simple control surface applications, these options may suffice.
- Moving faders increase control surface costs, but simplify the mixing process. As an alternative, nulling faders don't move, but include indicators that show whether the hardware fader is above or below the software's programmed value. You set the hardware fader's position to match the software value, then punch in.
- Check for expandability. That eight-channel moving fader setup may work for now, but then you'll want 16 channels, then 24…you know the deal. You should at least be able to bank-switch faders to switch to different channel groups (*e.g.*, 1–8, 9–16, etc.).
- Budget systems are proliferating. There are several new USB-based interfaces, such as the US-428 from TASCAM, EZ-Bus from Event Electronics, etc. These include audio interfacing options (such as mic preamps, D/A converters, etc.) along with faders and switches — excellent for those on a budget.
- There's more to control than mixing. Find a control surface that will let you tweak EQ settings, aux bus sends, etc.
- Check the footprint. A large, uncluttered control surface may be ergonomically ideal, but it will dwarf a QWERTY keyboard. You may have to alter your studio setup to accommodate some of the more advanced devices.

In any event, try before you buy. A control surface should be simple to use, feel good, and be well matched to your software. If you hook up with the right partner, you will likely find the operation of your studio to have a vastly improved "feel."

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CM AUTOMATION	Motor Mix Multiplatform Control Surface	8 motorized faders, 8 rotary pots, 1 rotary encoder, and 68 switches	Y	Through Pro Tools	N	MIDI		Digidesign Pro Tools TDM and LE	2-line 40-character LCD Display and LEDs	Y, up to 4 units can be combined	$995	www.digidesign.com, www.cmautomation.com
DIGIDESIGN FOCUSRITE	Control 24	24 touch-sensitive motorized faders	Y	Through Pro Tools	Y	Ethernet	Cue, talkback, listenback, 3 stereo pro tools inputs, 3 stereo external inputs, 16 focusrite class A pres, can be line or mic 2, equipped with DI's 8x2 stereo submixercue talkback, listenback	Digidesign Pro Tools TDM Version 5.1 or higher	14 Segment LEDs	N	$7,995	www.digidesign.com
DIGIDESIGN	ProControl	8 touch-sensitive motorized faders	Y	Through Pro Tools	Y	Ethernet	4 assignable stereo inputs, up to 5.1 surround	Digidesign Pro Tools TDM	15 and 40 segment LEDs	Y	$11,995	www.digidesign.com

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EMAGIC	Logic Control	8 touch-sensitive motorized faders, 16 user-definable function keys	Y	Y	Y	MIDI	N	Logic Audio 5	Y	Y, expandable to 24 physical fader channels with Logic Control XT expansion packages (8 fader channels each)	$799	www.emagic.de
E-MU/ENSONIQ	Paris C16 Pro	17 faders, 5 digital rotary encoders, 82 push-button switches	Y	N	Y	Proprietary	Import/export OMF files, ADAT, SMPTE	E-MU Paris	127 general-indicator LEDs	Y, units can be linked	$1,495 included with Paris Pro	www.E-MU.com
EVENT ELECTRONICS	EZ Bus	9 faders, 9 buttons, 9 trim control dials (all associated w/ faders)	Y	Y	Y	USB	2 coaxial S/PDIF outs, 1 coaxial S/PDIF in, optical S/PDIF in,ADAT optical in/out	Any Mac/PC, all major DAWs, virtual instruments, and plug-ins	Y, stereo peak metering	Y	$849	www.event1.com
JL COOPER	MCS-3800 Media Command Station	8 Motorized touch-sensitive faders, 60 user-programable function keys, and 5 rotary encoders	Y	Y	Y	MIDI and seven different optional interface cards. 2 of which can be active at once - USB, RS-232, 9-pin/RS-422, Quad 422, GPI, Quad MIDI, Ethernet	N	Soundscape R.Ed Editor V3.01 & Console Manager V1.0, Softimage DS, Digidesign Pro Tools and Soundscape, Steinberg VST and Nuendo NT/SGI, Merging Technologies PyraMix, Minnetonka Software, Digital Audio Labs MxTrax Kaydara Filmbox, Emagic Logic Audio, MOTU Digital Performer w/ JLC Plug-in, Maz Labs, Pinnacle	2x40 character backlit LCD LED timecode display	Y, to 64 faders using MCS-3000x	$2,999	www.jlcooper.com
JL COOPER	MCS-3000	No faders, jog dial, 28 buttons	Y	Y	Y			Soundscape R.Ed Editor V3.01 & Console Manager V1.0, Softimage DS, Digidesign Pro Tools and Soundscape, Steinberg VST and Nuendo NT/SGI, Merging Technologies PyraMix, Minnetonka Software, Digital Audio Labs MxTrax Kaydara Filmbox, Emagic Logic Audio, MOTU Digital Performer w/ JLC Plug-in, Maz Labs, Pinnacle	2x40 character backlit LCD	Y, to 64 faders using MCS-3000x	$1,999	www.jlcooper.com
JL COOPER	MCS-3000x	8 touch-sensitive motorized faders, 32 buttons	N	Y	N	MIDI		AVID Symphony, Composer, Xpress, and Newscutter, Soundscape R.Ed Editor V3.0.1 & Console Manager V1.0, Digidesign Pro Tools, MOTU Digital Performer w/ JLC Plug-in, Stand-alone MIDI control of most music sequencers and Digital Audio editing systems	N	N	$1,999	www.jlcooper.com
JL COOPER	MCS-3400	4 touch-sensitive motorized faders, 44 buttons, and jog dial	Y	Y	Y			Soundscape R.Ed Editor V3.01 & Console Manager V1.0, Softimage DS, Digidesign Pro Tools and Soundscape, Steinberg VST and Nuendo NT/SGI, Merging Technologies PyraMix, Minnetonka Software, Digital Audio Labs MxTrax Kaydara Filmbox, Emagic Logic Audio, MOTU Digital Performer w/ JLC Plug-in, Maz Labs, Pinnacle	2x40 character backlit LCD	Y	$2,499	www.jlcooper.com
JL COOPER	MCS-Tracker 3000	32 track arming buttons	N	N	N	Via MCS 3000, 3400, or 3800	N	Per host unit	N	N	$499	www.jlcooper.com

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MIDIMAN	Surface One	8 virtual touch panels, 8 virtual buttons, 16 rotary encoders	Y	Y	Virtual	USB, MIDI	N	Any MIDI	N	Y	$999	www.midiman.com
MIXED LOGIC	M24	24 touch-sensitive motorized faders, 53 rotary encoders, 155 tactile switches	Y	Y	Y	USB, MIDI	N	Steinberg Nuendo, Cubase, and VST, Emagic Logic, C Mex C'Console, and Digidesign Pro Tools	Possible LCD-based	Y, expandable in 24-channel sections	$3,999	www.mixedlogic.com
PEAVEY	PC1600X	16 faders, 16 push-buttons, 1 data dial	Y	Y	Virtual	MIDI	N	Presets support Digidesign Pro Tools and Session 8, TC Works Finalizer, Akai, DR8, DR16, S2000, and S3000, ADAT BRC, Yamaha ProMix 01, Roland VS-880 and JV-1080, Lexicon PCM-70 & 80, and LXP-15, Ensoniq DP-2 and DP-4, Peavey Spectrum organ, synth, and bass, and E-MU Planet Phatt	N	N	$399	www.peavey.com
RADIKAL TECHNOLOGIES	SAC-2K	8 touch-sensitive motorized faders, 1 master fader, 12 rotary pots, and 67 buttons	Y	N	Y	USB, MIDI	N	MOTU Digital Performer, Digidesign Pro Tools, Emagic Logic, Steinberg Cubase & Nuendo, TC Works Spark, Propellorheads Reason, Emagic Soundriver & Samplitude	N	Y	$1,849	www.radikal-technologies.com
RADIKAL TECHNOLOGIES	SAC-8X Expansion	8 touch-sensitive motorized faders, 8 rotary pots, and 30 buttons	N	N	N	USB, MIDI	N	N/A (expansion unit)	N	Y	$1,299	www.radikal technologies.com
ROLAND	VE-7000 29 Channel Edit Controller	Assignable knobs, 25 buttons, one joystick	N	N	N	MIDI	N	Most sequencers	N		$695	www.rolandus.com
STEINBERG	Houston	9 touch-sensitive motorized faders, 8 rotary encoders, Numeric keypad	Y	Y	Y	USB, MIDI	N	Steinberg VST platforms; any sequencer	N	Y	$1,499	www.steinberg.net, www.nuendo.net, www.cubase.net
TASCAM	US-428	9 faders, 10 rotary knobs, 43 buttons	Y	Y	Y	USB	2 XLR inputs, two balanced 1/4 TRS inputs, two unbalanced 1/4 inputs, and S/PDIF input/output	MOTU Digital Performer, Steinberg Cubase and VST, and Digidesign Pro Tools	LEDs	N	$625	www.tascam.com

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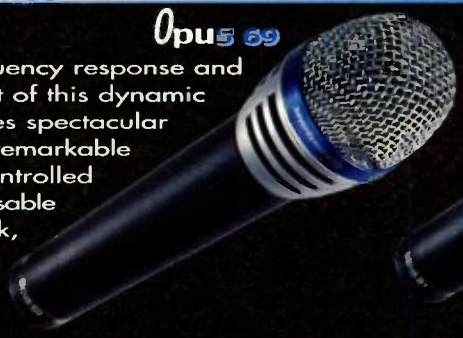

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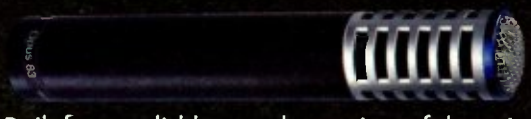

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EQ LIVE

INSIDE

FIRST LOOK: Meyer Sound M3D

New Products

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TRIAL BY FIRE

Studio engineer Obie O'Brien hits the road for the first time with Bon Jovi

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Langevin

DUAL VOCAL COMBO

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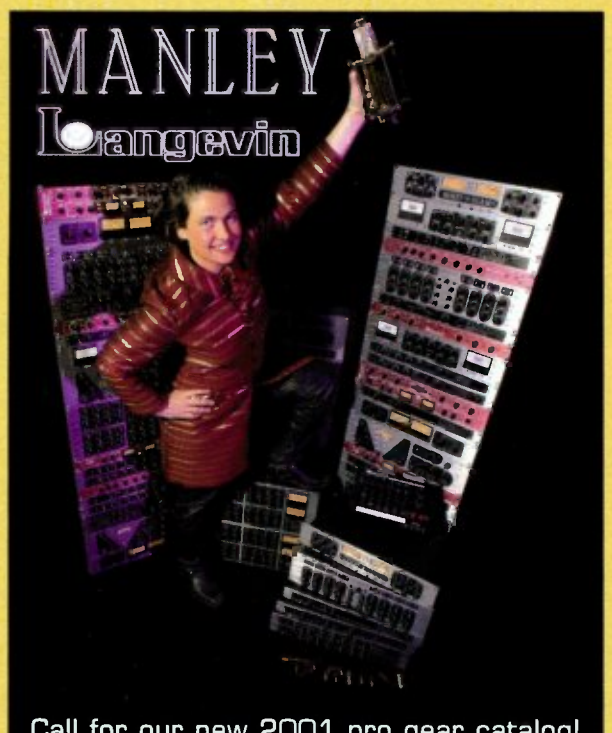

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We're Live!

It's probably not a big revelation, but over half of *EQ*'s readers do live sound work on a regular basis — both because you love getting out there live, and to supplement your studio's income. And, most of you have done live sound at some point in your career and expect to do more in the future. How do I know this? Hey, *EQ*'s eyes and ears are everywhere — we're the Big Brother of the professional audio industry! Seriously, this is what our reader surveys show us, and it's constantly verified in our conversations with readers and manufacturers.

Because live sound is such an important part of your activities, *EQ* has always included coverage of sound reinforcement topics, as well as reviews of live sound products. But, recently, it's become apparent that in order to truly serve your live sound needs the magazine should institute more formal coverage of the topics. Thus the birth of *EQ Live*, a "magazine within the magazine" dedicated to all things sound reinforcement. We're kicking things off this month with coverage of new products, a First Look at Meyer Sound's new line array speakers, a unique technique for maximizing the low-end impact of your mixes, and a discussion with Obie O'Brien, who recently made the shift from dedicated studio engineer to Bon Jovi's front-of-house engineer on the band's current tour.

You can expect *EQ Live* to contain the same level of information and focus on the live sound arena as *EQ* does on recording. We're dedicated to searching out the latest product information and most useful techniques, as well as the best and brightest engineers on the sound reinforcement scene. You'll also see us bring the same hard-hitting product review coverage to live sound products that we apply to studio gear.

Tune in every month; you're going to like what you see! And, as always, I want to know what you think. My direct email address is below — drop me a line and tell me how we're doing.

– Mitch Gallagher
mgallagher@uemedia.com

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World Radio History

BY STEVE LA CERRA

MAXIMUM WOOF

Kick up the Low-end

Part of the excitement of live music is its physical impact on the audience. A majority of the power in a live mix comes from the bottom end, and it's possible to increase impact without beating an audience over the head with massive sound pressure levels. All you need is a drummer who's willing to experiment a bit! Here's how I've done it with drummer extraordinaire Bobby Rondinelli and Blue Öyster Cult.

Bobby's drum kit is a classic "John Bonham" setup with a twist: there's a second bass drum, but kick two sits directly in front of Bobby's main kick. We call this the "subwoofer" or "resonator" kick. It's not physically attached to the main kick; it simply sits in front of the main kick. When Bobby hits the main kick, it excites the heads of the sub-kick, causing it to vibrate. The result — whether you're listening acoustically in the room or via mics through a PA — is greatly increased impact in the bottom end.

Bobby's kit is a GMS Grand Master Series that includes an 18x24-inch main kick drum. GMS built Bobby a matching resonator kick with a shell depth of eight inches. This resonator looks sort of like a parade drum with legs. Bobby uses Attack drum heads on all of his drums. Both sides of the resonator have Smooth White Bass heads with felt strips behind each, while the main kick has a No Overtone Clear head on the batter side with a Smooth White on the front (the front head has a four-inch hole in it). There's nothing inside either drum. Bobby's tech, Tommy Skriver, sets the resonator as close to the main kick as possible without allowing the two drums to touch.

Both kicks (and all the toms) utilize the May Miking System with No-Drill Adapters mounted inside the drum shells. Besides eliminating mic stands, the May System also helps reduce leakage of external sound into the drum mics. The main kick has the May D-4BD and the sub-kick uses the May D-4R/F. Both use Audix D4 mic elements. Placement of the mic within the resonator kick is less critical — we're only concerned with the "boom" of the resonator.

Bobby hears only the main kick in his monitors, but I get both kicks at front-of-house on separate channels. I use Drawmer DS404's to gate both mics. Lately I've been linking the two gate channels to keep the gating on the sub-kick consistent; the main kick triggers the gate on the sub-kick.

Depending on how the drums are tuned, one kick channel might need to have its polarity reversed. When we first started using this setup, the channels would be in phase for maximum woof. Then Tommy tuned the kicks a bit higher, and I've generally had to reverse polarity on the sub-kick. Solo both channels and while the kick is being hit, reverse one. Watch the level on the cue meter. If the level increases, then leave the polarity reversed.

I use very little EQ on Bobby's kicks — just a little bit of cut around 500 Hz for the main kick. If the sub-kick gets sloppy, I'll use the low-frequency roll-off filter to tighten it up.

I usually set up a compression bus for the kick and snare mics. They get assigned to bus one as well as to the L/R master. A compressor is inserted onto bus one, usually set to a threshold of around –10, attack time as fast as possible, release time of about 150 milliseconds, and a ratio of 6:1. By adding this to the mix along with the uncompressed kick and snare channels, there's dynamic consistency in the mix without destroying the dynamics of Bobby's performance. ■

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We are the movers & shakers
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Ode (1874)

Poet, Arthur O Shaughnessy

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BY STEVE LA CERRA

TRIAL BY FIRE

STUDIO ENGINEER OBIE O'BRIEN HITS THE ROAD FOR THE FIRST TIME WITH BON JOVI

Some people go to the ends of the earth in support of their friends — literally in the case of Obie O'Brien. A longtime friend of Bon Jovi, O'Brien has worked as studio engineer with the band for, as he puts it, "a hundred years, but I never thought about the live thing because it was such a different animal."

So why do it? "Jon released a solo record called Destination Anywhere, and decided to do a small tour to support it," Obie explains. "He asked me to handle PA. Okay. Hmmm... what do I know about PA? Nothing! But, Jon asked me to do FOH. Of course I'm going to do it because he treats me like gold. So, my first gig was at the Budokan in Japan. My first live gig. I had never even done PA in a club — no rehearsals, no practice, nothing. We just went to Japan."

"My saving grace," he laughs, "is that I'm stupid enough not to know much about PA gear, so I put racks together with Pultecs, 1176's, LA-2A's — I used Neumann U 87's for drum overheads. I basically took my studio gear out with me live because I didn't know better. Everything I did in the studio I copied for the live shows, having no idea whether it would work or not. Thank God the band was amazing and made my life easy.

"When we got to Japan and set up at Budokan, it was like wrestling an alligator. I don't know how else to put it. Concrete, slaps everywhere — I'm spoiled from working in well-designed control rooms. But, here I am doing a soundcheck. I come back a half-hour after that first snare drum hit, and it's still going! I'm like, holy sh*t!"

USE THE FORCE, OBIE....

Obie relied on his studio experience to get the live mix happening: "I've heard a lot of live mixes where things sounded disjointed to me. When the drummer hit the drums they'd sound like they were coming from different places. I approach the live mix like a record. I put the drums up first and then tie the set together with my overheads. I get a lot of the kit in the overheads and I don't roll out the low end. They're placed fairly high in a 'Y' crossfield pattern — the mics are angled as they'd be for an X-Y pair, but they're about 24 inches apart. I always check the imaging for these mics with headphones. Everything else is miked so closely that I wouldn't get the impression of air around the kit. That's why I like the overheads. I pan them at two to three o'clock on one side and nine to ten on the other (I also do this on records). When they're panned hard, they sound funny to me — all of a sudden you hear a crash cymbal and it's way over there. I had compressors on the bass drum and snare drum, and I was smashing them — killing them, just like I do in the studio."

Obie recorded these shows and Jon liked what he heard. "My mixes were closer to the record than Jon was used to hearing," O'Brien says. "When we were done recording Crush, Jon asked me how we could translate that record to the

> > > > >

^ Obie O'Brien (right) and David Eisenhower

World Radio History

No energy crisis here.

FUEL Brett Scallions–vocals, Jeff Abercrombie–bass guitar, Kevin Miller–drums, Carl Bell–lead guitar

The ATW-7373 Handheld Condenser Wireless System

The new ATW-7373 handheld wireless system is essential gear for FUEL's high-energy non-stop live show. In fact, these hard rockers depend exclusively on Audio-Technica microphones for all instruments and vocals.

Fuel's FOH engineer, Randy Lane, is an ardent fan of A-T mics: "Both the sound quality and durability are outstanding. Night after night, after endless load-ins and load-outs, these mics never fail to deliver the goods. They also give us that same vibrant, natural sound of the studio."

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TRIAL BY FIRE

PA. The thing about Bon Jovi is that, live, they're in your face. I wanted to combine that grunge factor with the CD and make it a giant, in-your-face jukebox. Jon said, 'Don't bother me with it. Put together whatever you need to be comfortable.' So, I got on the phone with Clair Brothers and told them I wanted Neumann mics, API mic pres, 1176's, ten Summit stereo EQs, PCM70's — the guy at Clair was saying, 'What, what?' But, they were great and put together everything I asked for.

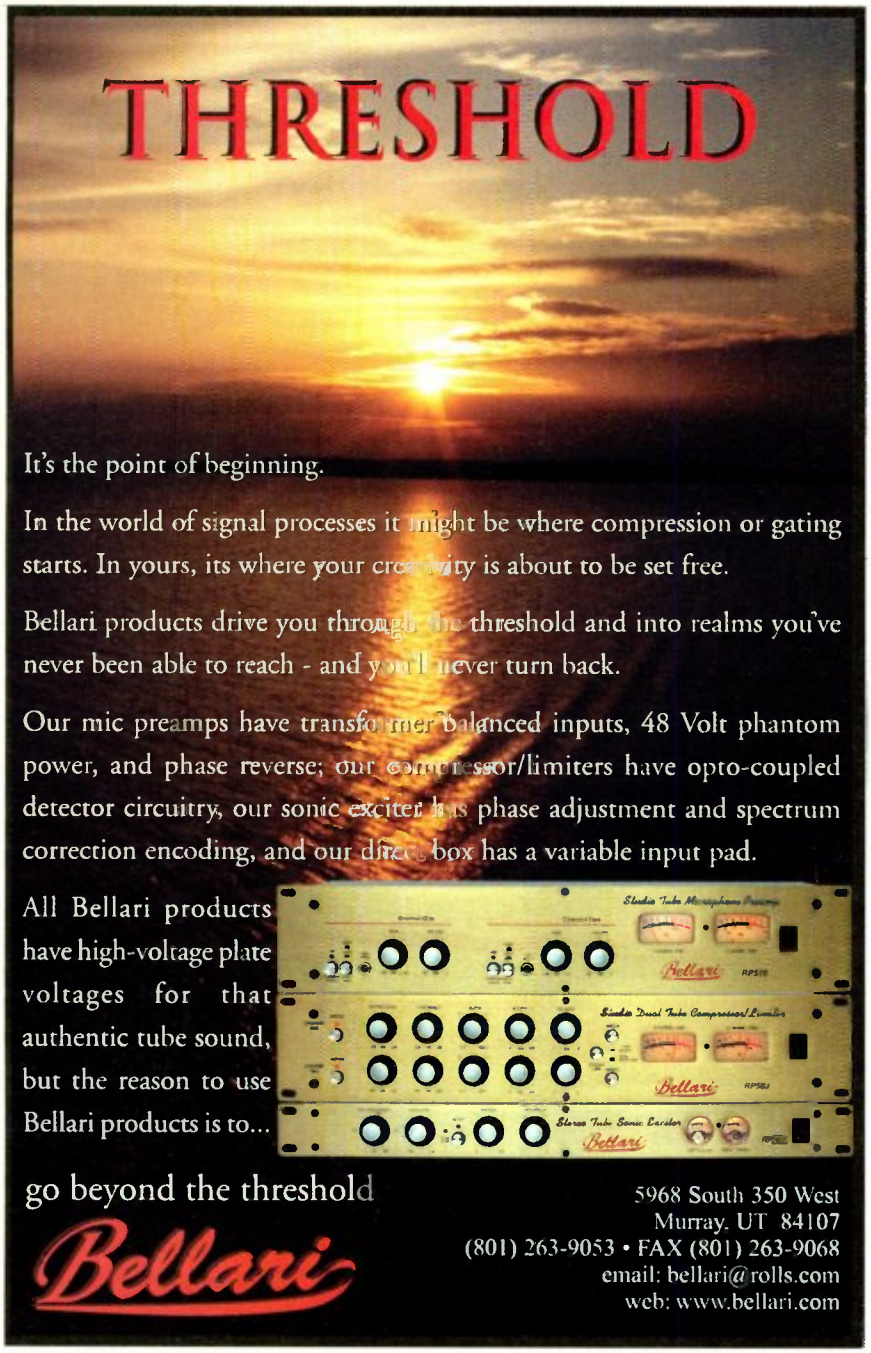
Clair Brothers also sent Tim Lamoy out with us, who is a phenomenal FOH engineer. I knew that basically they told Tim: 'Okay, baby-sit this guy.' I love Tim. He and Rocky Holman [the band's monitor engineer] were incredibly helpful, especially regarding placement of the PA. Over the years, these guys have seen it all. They look at a venue and know where to hang the rig. I was able avoid a lot of potholes by having Tim and Rocky's expertise. I'm smart enough to know what I don't know, so I listen to the guys who've been doing this for a hundred years.

"I always hated the mud in the low end at live shows. I wanted to hear every note the bass player was playing. Initially, I wasn't good with that balance — I was too light in the bottom. Tim would say, 'You gotta put that in because people feel it and respond to it.' So, it changed over the first few shows. Then I got to a point where I was happy with the clarity in the high end. You can't just make it loud and assault the audience. In fact, on several occasions, people told me to bring up the volume of the PA."

SPLIT CONSOLE

With all of his studio experience, no one knows Bon Jovi's music better than Obie. "I know every lick Richie [Sambora, guitarist] plays and I know all David Bryan's little keyboard turnarounds. Tim would hang with the vocals while I took care of the rhythm section. I'm free to tend to stuff like turning off gates when Tico [Torres, drummer] does a buzz roll or takes the dynamics way down — so you can hear all the subtle stuff he plays. I do the same for Richie's guitar parts. I use the same two mics as in the studio [a Shure SM57 and a Sennheiser MD421], and I pay attention to the balance between those two mics from song to song, for instance, say in a ballad where the '421 comes up because it has a warmer sound. I use short, medium, and long delays for Richie, as well as short and long reverbs, Harmonizer, and octave dividers. I use ten aux sends just for Richie's effects, which include Roland and Lexicon delays, plus two Lexicon PCM70's and a PCM90 for reverbs.

"While I was concentrating on the rhythm section, Tim made sure the vocals stayed on top. He'd have different effects for different songs depending on the mood he wanted to create with the vocal sound. When we recently took a break, Tim was offered a tour with the Backstreet Boys, so he was out with them for 15 months. Luckily, Clair Brothers sent out a great engineer named David Eisenhower, so now he and I will be mixing the show together. There's so much going on that it's too much for one person."



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World Radio History

By DJ Russ Reign • rmikowski@uemedia.com

Mediaform CD-5121 CD-R Duplicator

Short-run CD duplication just got easier

Mediaform's CD-5121 desktop CD duplicator is a reliable and functional powerhouse quite capable of fulfilling all your short-run replication needs. A basic and to-the-point unit, this two-drawer duplicator doesn't have all the bells and whistles associated with more expensive competitors (internal hard disk, expandability options, track labeling ability, numerous computer integration options, etc.), but if you want to copy CDs quickly and reliably, you should definitely check this puppy out.

Featuring an Ultraplex read drive and Mediaform's own SmartDrive 2 for writing purposes, the burner was able to handle all media that I threw at it during the review process. I flawlessly copied audio to Mitsui, Maxell, and TDK CD-Rs, graphics images to TDK data CD-Rs, and computer programs to Memorex Data CD-Rs. Best of all, the duplicate audio CDs played in all devices I tried them in — car stereos, a Discman, computer drives, and even an early-model Aiwa stereo that usually has problems reading burned CDs.

Utilizing a navigation system comprising an LCD and five buttons, getting this machine to do what you want couldn't be easier. Arrow buttons allow you to cycle through options that are laid out logically within the framework of the unit's various menus. In fact, this thing is so simple to use that its "instruction manual" is merely a single two-sided, laminated one-sheet. It will take even the biggest techno-phobe all of five minutes to memorize the commonly used functions.

Pressing the "menu options listing" button allows you to view and manipulate seven different options — copy speed, diagnosis, update software, reflection enable/disable, counter enable/disable, language (English, Chinese, and Japanese), and operation options. Operation options include test, write, test and write, write and verify, select song only, close disc, quick erase re-writable disc, and full erase re-writable disc. The CD-5121 can copy CDs at five different speeds — 12x, 8x, 4x, 2x, and 1x. I was amazed at how fast 12x duplication really is — 6.16 minutes to copy a full 74-minute audio CD! With speed like that, it becomes less relevant that the unit only copies one disc at a time.

▶MEDIAFORM CD-5121

MANUFACTURER: Mediaform, 400 Eagleview Blvd. Suite 104, Exton, PA 19341. Tel: 610-458-9200. Web: www.mediaform.com.

SUMMARY: A one-to-one CD duplicator for home or project studio use.

STRENGTHS: Ease of operation. Media compatibility. Five duplication speeds.

WEAKNESSES: Not expandable.

PRICE: $1,299

EQ FREE LIT. #: 125

The CD-5121 comes complete with a SCSI connector and RCA output jacks on its rear face. A front-panel power switch makes the unit ideal for desktop use, as you can put it up against a wall or desk back and not have to reach behind to power it up. Each drive also has its own independent volume control and mini headphone jack.

During the review, I was particularly impressed with the CD-5121's audio track extraction mode. It's possible, with only four button presses, to select a single or multiple tracks from the CD in the read drawer (in any order) and subsequently copy them to the CD in the write drawer. Black highlight blocks appear over selected tracks on the LCD, making it easy to remember what selections you've made. Upon finishing your extractions from the CD in the read drive, you are given the opportunity to finalize your disc or continue onward and copy more tracks from a different source CD — pretty cool! Functions like these make this product a hit not only with studio types, but also with audiophiles interested in using it for archival purposes.

I really couldn't find anything I didn't like about Mediaform's CD-5121. No, it's not a virtual mastering house with a whole slew of options, but, for the studio owner in need of a fast and reliable duplicator, this piece is definitely a winner! ■

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FIRST WE LISTEN

CIRCLE 81 ON FREE INFO CARD

By Steve La Cerra • slacerra@uemedia.com

BLUE Microphones Dragonfly Cardioid Condenser Microphone

Distinctive mics that sound as good as they look

Baltic Latvian Universal Electronics — a.k.a. BLUE — has rapidly become established as a manufacturer of high-quality condenser microphones for studio applications. Their Dragonfly is a Class-A, discrete-electronic, transformerless microphone with an integral elastic shock mount. Aptly named for its unique appearance, the Dragonfly is intended to be used on a variety of sources, including acoustic and electric guitar, saxophone, wind instruments, drums, and even vocals. Its frequency response features a gentle bump of almost 2 dB at 90 Hz and another bump of 2 dB at around 15 kHz. The Dragonfly requires standard 48-volt phantom power, and its rotating cardioid capsule was designed to allow optimum placement just about anywhere (I found that this was indeed the case). BLUE sent a matched pair of Dragonfly microphones as well as a pair of their Cranberry mic cables (specifically designed for the Dragonfly).

Matched pairs of Dragonfly mics are only available directly from BLUE, as the capsules are factory-tuned as a set. Each mic ships in a cherry wood storage box with padded, velvet-lined interior; the "regular" Dragonfly comes in a Linen-type box. The packaging definitely ups the "ooooohhh" factor, as well as providing a safe haven for the Dragonfly. More importantly, the box houses the mic in its shock mount — a small detail, but less of a pain at setup and take-down time. Three screws are located along the outer rim of the Dragonfly's capsule; two are transport screws that lock down the internal suspension, preventing it from transit damage. The third screw is at the top of the capsule and should not be removed. This screw prevents the capsule from over-rotation and possible damage to the internal wiring that connects the capsule to the internal preamp circuitry. Standard finish for the body is matte black; matched pairs are finished in green lacquer. As I've found typical of BLUE microphones, attention to detail was excellent, with tight tolerances and fine finish work. BLUE takes a lot of pride in the fact that they manufacture and hand-tune their own capsules, and they should — their capsule construction is first-rate.

In my first session with the Dragonfly's, I used them as room mics on a drum kit. Placing the mics in an X-Y stereo configuration proved a bit challenging until I discovered that the easiest way to do so was by hanging one mic upside-down above the other. I placed the mics

▶BLUE DRAGONFLY

MANUFACTURER: BLUE Microphones, 766 Lakefield Rd., Suite D, Westlake Village, CA 91361. Tel: 800-370-1599. Web: www.bluemic.com.

SUMMARY: Cardioid condenser microphone with Class-A electronics, intended for studio use

STRENGTHS: Sounds excellent on a very wide variety of sources. Reasonably-priced. Very precise matching of mics in stereo pairs.

WEAKNESSES: Cardioid pattern only.

PRICE: $1,095; matched pair, $2,800; Cranberry mic cable: $44.95

EQ FREE LIT. #: 126

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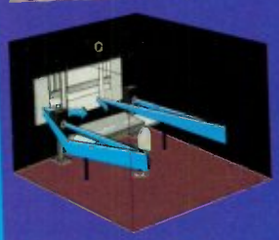

1 Europa Flutter Wall
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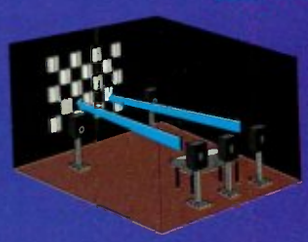
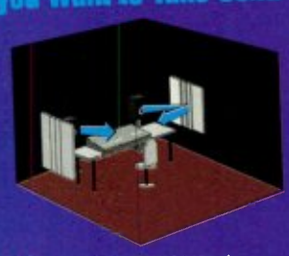
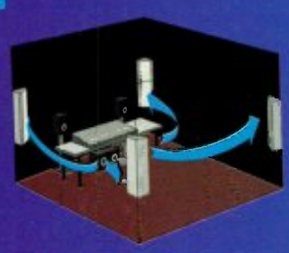


2 Scandia Scatter Blocks
Affordable alternative to diffusion. Keeps room live and reduces standing waves. Over 12 creative patterns to choose from. Prices start at $100*.



3 Orientique Washboard
Absorbs primary reflections and side-to-side flutter. Six creative patterns to choose from. Prices start at $80*.



4 Australis Bass Trap
Effective down to 45Hz, tightens up bass and reduces smear. Can be used in corners or on walls. Priced at $100* each.

*Suggested US retail price.

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CIRCLE 97 ON FREE INFO CARD

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about four feet high and three feet in front of the kick drum in a small, live room. It quickly became clear why BLUE offers Dragonfly's in matched pairs: the stereo imaging of these mics was outstanding. I've used plenty of "pairs" of mics, as well as a few stereo microphones, but the imaging of the Dragonfly's blew them all out of the water. The ride cymbal and hi-hat were positioned precisely where they were supposed to be, never becoming blurry in the mix. The entire frequency range of the kit was well represented, including the bottom end. Routing these tracks through a pair of Empirical Labs Distressor's set to "Nuke" just about achieved my ideal of the Holy Grail room sound for drums.

On a session with independent singer/songwriter Ernest Buckley, I recorded a Baldwin acoustic piano with the Dragonfly's. Patched through an Aphex 107 Tubessence mic pre, the mics were configured in a spaced-pair about eight inches from the hammers, and slightly pointing toward the center of the sound board. Results were highly successful. Reproduction of the hammer attack on the top end had the perfect amount of realism without being too aggressive. The entire range of the piano was balanced, with no section "sticking out" in terms of volume. The Dragonfly's tracked Ernest's dynamics accurately, easily reproducing his performance when he played very loudly. Ernest commented that he liked the way the mics captured the left/right perspective, clearly locating the low register to the left and higher register to the right.

Recording Ernest's Yamaha acoustic guitar with the Dragonfly's produced a wonderful tone with a glistening pick attack, a round bottom, and a full sound. Again, with the mics in X-Y, stereo imaging was excellent. When Ernest fingerpicked the guitar, the Dragonfly's produced a clear, articulate midrange with a lot of wood, revealing the true character of his guitar.

Using the Dragonfly on an electric guitar amp yielded mixed results. Though I liked the high-midrange of the sound, the Dragonfly sounded small in the lower mids and bottom, lending the guitar/amp combination a less powerful sound that it actually produced in the room.

A single Dragonfly through a Grace Model 101 pre and an Anthony DeMaria Labs ADL1000 limiter delivered a silky-smooth sound for male lead vocal. It had a crisp top end, but this wasn't achieved through the blatant presence peak typical common to many vocal mics. Rather, it produced a very subtle open-ness or "air" to the sound that provided presence in a mix without being harsh. The bottom end showed a slight "touch-up" to the chest region of the voice without the strong proximity effect of many medium- and large-diaphragm mics. When the vocalist moved off-axis, low-frequency response diminished slightly; I found the low-end sweet spot to be directly in front of the mics. Interestingly, the top end remained consistent from about 60 degrees to about 120 degrees off-axis.

BLUE has a winner in the Dragonfly. It's an excellent all-around microphone, but it *excels* at reproducing instruments. If you can pop the dough for the matched pair, do it because you'll find yourself reaching for the Dragonfly's anytime you need to record in stereo. ■

BLUE KIWI

The newest mic in BLUE's expanding line of offerings is the eye-catching Kiwi, a large-diaphragm, multi-pattern condenser mic. A big, solid-feeling mic finished in powder green, the Kiwi exudes fine craftsmanship, from its beautifully finished shell to its shockmount (included) to its lovely wood case. The mic electronics are a Class-A, all-discrete, transformerless design; the mic specs out at a low 8 dB-A self-noise level, and can handle up to 133 dB of SPL despite not having a built-in pad. A total of nine polar patterns are available via a rotary switch on the back of the unit; these range from omni to cardioid to figure-8, with several variations in-between.

At a list price of $2,295, the Kiwi is clearly intended to compete with the "big boys," yet it does so without falling into the look-alike/sound-alike trap that so many large-diaphragm mics seem to get ensnared in. This mic is as distinctive sounding as it is unique looking, with a nice presence boost on the top end that adds air and detail to the sound without making it harsh.

I was especially enamored of the Kiwi on male vocals, where it sounded present and detailed, but with a smooth overall timbre that sat exceptionally well within a full mix — no EQ required. BLUE recommends using a pop filter when recording vocals with the Kiwi, and the review unit was shipped with the optional BLUE "The Pop"; a cool rectangular unit that clamps right onto the body of the Kiwi. (The Pop also fits Neumann U 47 and U 48 mics.)

I was also quite happy with the Kiwi on guitars, both acoustic and electric. Attacks were crisp and sparkling, while the body of the notes was round and full — but not so full that each note in a fast complex fingerpicking pattern wasn't easily discernible. On very soft acoustic guitar passages, the low self-noise and sensitivity of the mic allowed it to pick up the sound of every movement of the fingers on the strings — both the fretting and the picking hand. This resulted in an amazingly detailed and intimate sound. Lovely!

Everything about the Kiwi is topnotch, from its sound to its manufacture to its documentation — the included manual goes beyond the normal spec sheet and polar pattern printout to cover using the mic in various applications. Great for the beginner, but a handy reference for more experienced recordists as well.

If you've reached the conclusion that I was impressed with the Kiwi, you're correct! It's a nicely designed, good-looking mic that's sure to garner attention when you put it up during a session. But more important than that, the Kiwi delivers excellent sound quality and is quiet, sensitive, and versatile enough to handle a wide range of applications. Definitely a worthy addition to any mic cabinet. *—Mitch Gallagher*

BLUE DRAGONFLY SPECIFICATIONS

Polar Pattern	Cardioid
Frequency Range	20 Hz to 20,000 Hz
Sensitivity	21 millivolts/Pascal @ 1 kHz into 1 k ohm
Rated Impedance	50 ohms
Max. SPL for 0.5% THD	132 dB
Signal-to-Noise Ratio	87 dB, A-weighted re: DIN 651

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World Radio History

By Jon Chappell • jchappell@uemedia.com

Focusrite Platinum MixMaster Mastering Processor

Affordable, high-quality mastering tools in a single processor

If you want digital versatility combined with analog magic, the Focusrite Platinum MixMaster may just be your all-in-one dream box. It's a two-rackspace all-analog processor housing a suite of the most commonly used mastering tools. It's simple to operate, sports versatile routing options, and sounds great. Two of its components — the compressor and the equalizer — are outstanding, both in sound quality and features, and can be used independently of the rest of the box.

OVERVIEW

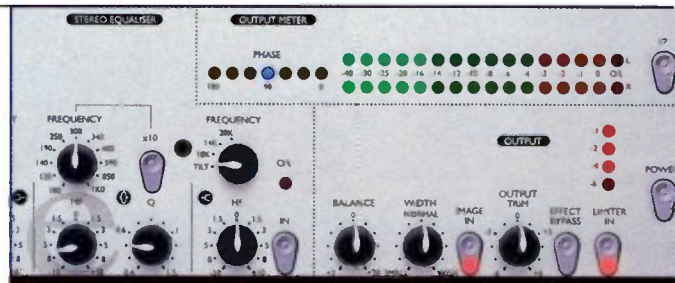
The MixMaster sports five processors, whose controls are arranged on the front panel in the order of the signal chain: an optical expander, a spectral (multiband) compressor, an equalizer, a spatial enhancer, and a fixed-threshold multiband limiter (whose only control is a switch that toggles between active and bypass). Just before the limiter is an output level control. The back panel reveals the MixMaster's versatile I/O options, including +4 dBU balanced analog I/O on XLR connectors and –10 dBV balanced analog I/O on 1/4-inch TRS jacks. You can use both sets of analog outputs simultaneously. Our review unit was shipped with the optional digital-output section, which converts the analog signal to AES/EBU or S/PDIF stereo output in a choice of sample rates (44.1, 48, 88.2, and 96 kHz) at either 16- or 24-bit resolution. There's also a word clock input.

Focusrite adds a pair of balanced TRS Direct Input jacks that come just before the output level control and limiter. This enables you to patch in an independent stereo or mono signal and output it through the stereo bus.

THE PATH TO GLORY

The first processor in the chain is the Stereo Optoexpander, which uses an optical sensor, rather than a VCA, to perform its expansion functions. There are only two controls, a variable threshold, ranging from –60 to –20 dB, and a release that goes from 0.5 (500 ms) to six seconds. I found I could adjust the controls to suit a fairly taxing situation — low-level electric guitar with long fades and noisy pickups surrounding the notes' entrances and exits — and it worked just fine.

The Stereo Spectral Compressor is next in the chain, and this is one of the varsity-level effects that offer a high degree of control. The usual parameters that you'd expect are here — threshold, ratio, release, and makeup gain (output). There's no adjustable attack-time parameter, but a Slow Attack switch lets you select between 10 ms and 500 ms. Though not as versatile as a dedicated, continuously variable attack-time control, the Slow Attack handled every situation I threw at it. The release time offers four preset values. Additionally, there are two automatic settings — PDF (program dependent fast) and PDS



▶ FOCUSRITE PLATINUM MIXMASTER

MANUFACTURER: Focusrite Audio Engineering Ltd., dist. in North America by Digidesign, 3401-A Hillview Ave., Palo Alto, CA 94304. Tel: 800-333-2137. Web: www.focusrite.com, www.digidesign.com.

SUMMARY: The MixMaster contains many of the tools you need to provide a great-sounding analog finish to your mixes in a single unit.

STRENGTHS: Great sound. Easy and intuitive operation. Versatile routing capabilities.

WEAKNESSES: No continuously variable attack time on compressor. Can't EQ high and low mids simultaneously.

PRICE: $1,395; with optional A/D output: $1,690.

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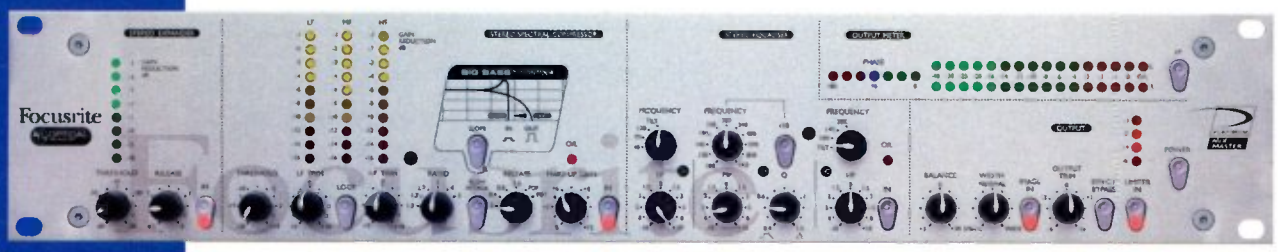

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(program dependent slow). I used PDF for more dramatically dynamic rock tracks, and the PDS for some ambient background beds. I couldn't tell the difference between my carefully calculated and selected release times and the automatic settings. So unless I'm having a bad pumping problem with spiky transients in the low register, I'll keep using the auto settings. It's a real time-saver.

But the big news in the MixMaster's compressor is its spectral, or multiband, compression capabilities. This is where you can split the audio spectrum into three frequency bands — high, middle, and low (HF, MF, and LF) — and apply separate compression to the individual bands. This prevents, for example, a prominent kick drum from triggering the compressor and applying compression across the entire mix. The high and low frequency bands each have a trim control that varies from –10 to +10 dB.

There's no trim control for the MF (mid-frequency) band, and you can't adjust the crossover frequency for the point at which the MF band switches over to either the LF or the HF band. But, a LF Slope Adjust switch changes the crossover point between the LF and MF bands. With the switch activated, the crossover point shifts downward from 200 to 100 Hz, and an inductor circuit kicks in, adding an emphasis peak just below 100 Hz.

The equalizer is the other powerhouse effect on the MixMaster. Each of the three bands provides 10 dB of boost or cut — plenty of range for most musical tweaking. The LF and MF bands each have a frequency-select knob with four settings; the MF band offers a variable knob from 100 Hz to 1 kHz, plus a x10 switch and a Q control. The EQ's sonic results were so pleasing, subtle, and musical, that I rarely needed to stray more than a few dB from center with the level knobs. The tonal quality of the MixMaster's EQ is one of the unit's strongest features.

At the end of the chain are the Spatial Enhancer and the Limiter. The Spatial Enhancer features two controls: Balance (adjusts the output on each side by up to 3 dB) and a continuously variable Width control that ranges from "Small" to "Wide." At the Small setting, the Width control emphasizes the material common to both channels. This is what your signal will most resemble when summed to mono. As you turn the knob to the Wide position, the Width control emphasizes the material unique to each channel and thus widens the stereo image. I had a lot of fun with this control, especially with headphones on.

IN USE

A lot of my recording work is for TV, specifically daytime dramas (we're not allowed to call them "soaps"). I was preparing a cue that featured a reverb-drenched Dobro playing slowly and ominously over a pulsating synth bed. While I liked the musical results, I knew right away that the mix had problems. For one thing, it was muddy. It turns out that I had another problem as well: the low-frequency content was too dynamic; every time the Dobro went into the low register, the meters went up. Very bad for TV. I needed multiband compression to tame just the low peaks, and EQ to correct the overall sound.

I ended up dialing in an 8-dB cut on the LF Trim knob, with the frequency set at 70 Hz. Then I zipped over to the Spectral Compressor, where I knocked down the LF Trim to about –6 dB and set the Threshold to –7, successfully evening out the low end without sapping the dark, brooding quality of the mix.

CONCLUSION

Taken together, the components of the MixMaster add up to an impressively implemented, well-designed processor. The MixMaster won't replace a full-blown mastering studio and its individual single-function processor, but for people who like their final mastering performed in the analog domain, the Focusrite Platinum MixMaster offers an irresistible solution. ■

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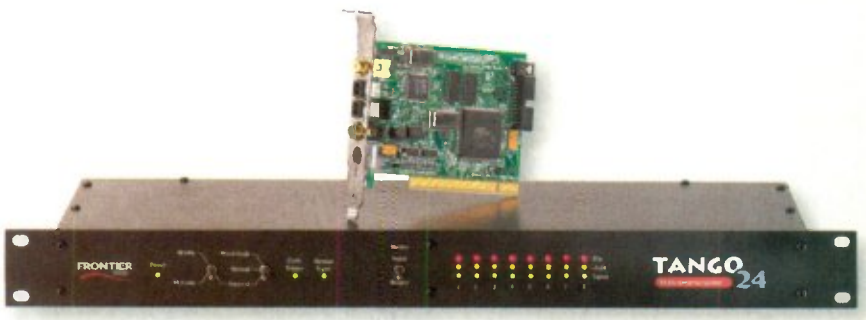

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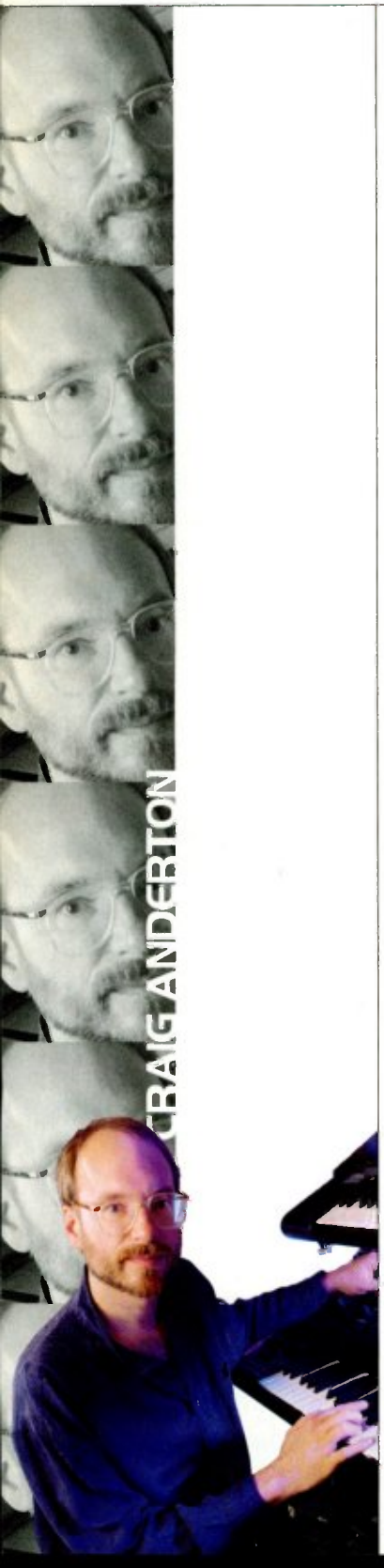


Maybe you'll never have a room full of spectrum analyzers, oscilloscopes, and frequency response testers — but this is only because you won't need them. In fact, you may already have a pretty fine lab; drill a little deeper into digital audio editing and other programs, and you'll find a load of options to help you test and quantify your audio.

SPECTRUM ANALYZER

As a prelude to cheap test gear, let's look at something that's free. Windows Media Player 7.0 has a "visualization" option, which, had it been around in the '60s, would have made Windows very popular — it's sort of like having a lava lamp onscreen. For us, the most useful visualizations relate to frequency response analysis.

With the player open, go to View > Visualizations > Bars and Waves for three spectrum analysis screen options. "Bars" looks like a standard spectrum analyzer (see fig. 1), while "Ocean Mist" and "Firestorm" are artier versions. There's also an oscilloscope view. (Note: to see visualizations, you need to check "Digital Audio" under Playback Settings at Tools > Options > CD Audio.)

None of this is calibrated; you don't even know if the response is logarithmic or linear (but it looks like log). Still, it's useful to call this up when listening to CDs, especially in terms of getting an education on how frequencies are distributed through the spectrum for various CDs.

Of course, you don't have to go "on the cheap." High-end digital audio-editing programs often include useful spectrum analysis displays. Fig. 2 shows Wavelab's spectrum analysis function. The left window is a view of a signal processed by a steep high-pass filter (using Sonic Foundry's paragraphic EQ plug-in) applied at 30 Hz to remove some subsonic junk, while the right displays the original spectrum.

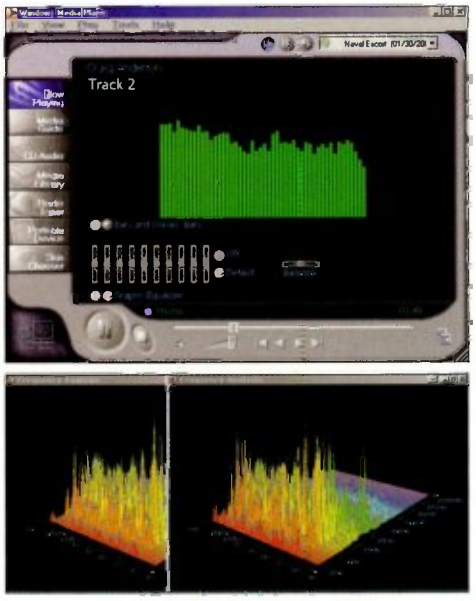
FUNCTION GENERATOR

The expensive, difficult-to-calibrate sine wave test oscillators of old are about as obsolete as the slide rule, because most editing programs have some type of waveform generation capability.

For example, fig. 3 shows a screen shot of how to generate a sine wave using Sound Forge's Simple Synthesis tool: Pick a waveform, then specify a length in seconds, frequency, and amplitude, and you're ready to go. The best part is that you can create a folder of useful calibration tones — 1,000 Hz for general level checking and calibration, 440 Hz for tuning, or (as in fig. 3) low E for an electric guitar (82.41 Hz). Loop these waveforms, and your file sizes will be tiny.

SWEEP GENERATOR

Sometimes you want more than a static waveform, such as a sweep that covers a specific frequency range over a specific amount of time. Steinberg's Wavelab has a Signal Generator function that can make just about any kind of sweep imaginable, including separate sweeps in the left and right channels. But even if your editor lacks this capability, you can usually create a similar effect by generating a static test tone (as described previously) and then applying a pitch envelope or pitch bend to create the sweep.



FIGURES 1 (top) and 2

BIAS Peak 2.5 includes a VST test tone generator plug-in. Using it is fairly simple —

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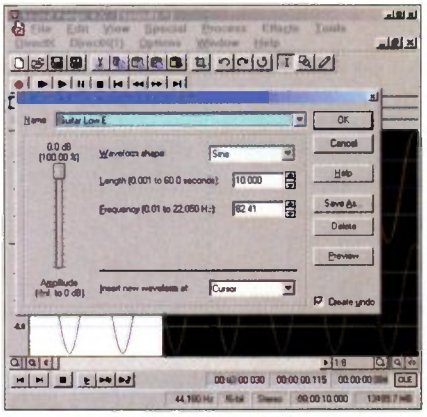
you create a new file, call up the plug-in, specify the type of signal you want, then bounce it to the file. (If you want to turn this perfectly useful tool into something more bizarre, a "Thru" parameter incorporates what was previously in the file into the bounce. This lets you overlay tones to create a complex cluster.)

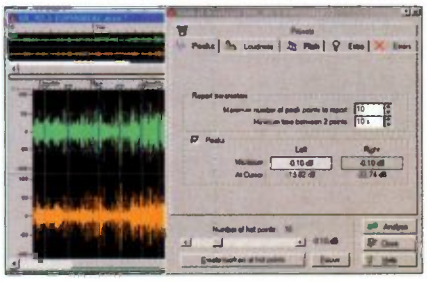
Sweep tones are useful when testing frequency response, as you can hear peaks and dips as they happen. With devices such as speakers, you can tell where high- and low-end roll-offs occur.

To check the general frequency response of a specific device (e.g., preamp, filter, etc.), you may be able to use one program (such as Windows Media Player) to play back the swept frequency and a second program (e.g., your digital audio editor) to record the output of the device under test. Although the resulting graph won't be calibrated, if a particular frequency seems unnaturally boosted or cut, you can measure the wave's period at that point and derive its frequency (frequency in Hz = 1/period in seconds).

STATISTICS/ANALYSIS

Wouldn't it be great if you could find the highest peaks in a signal to, for example, check for distortion, and, while you're at it, find out a tune's average power level? Again, digital audio editors to the rescue.





FIGURES 3 (top) and 4

Most have some sort of function that will analyze a signal, and report back to you on what they find.

Fig. 4 shows Wavelab's Global Analysis window. The Peak tab can place markers at whatever number of peaks you specify; you can then examine the signal in the marker's immediate vicinity. This screen also shows the maximum levels for right and left channels, as well as the level at the cursor.

The Loudness tab shows the minimum, maximum, and average RMS power readings, which is useful for deriving a peak-to-average signal ratio (this can give a rough indication of how compressed your material is — the higher the average reading, the more likely the signal is compressed). The Pitch tab analyzes the pitch of steady-state signals, the Extra tab shows the amount of DC offset, and the Errors tab locates glitches (i.e., discontinuities in the audio) and clipping. What's cool about all these parameters is that you don't have to spend any actual time measuring things —

▶ continued on page 137

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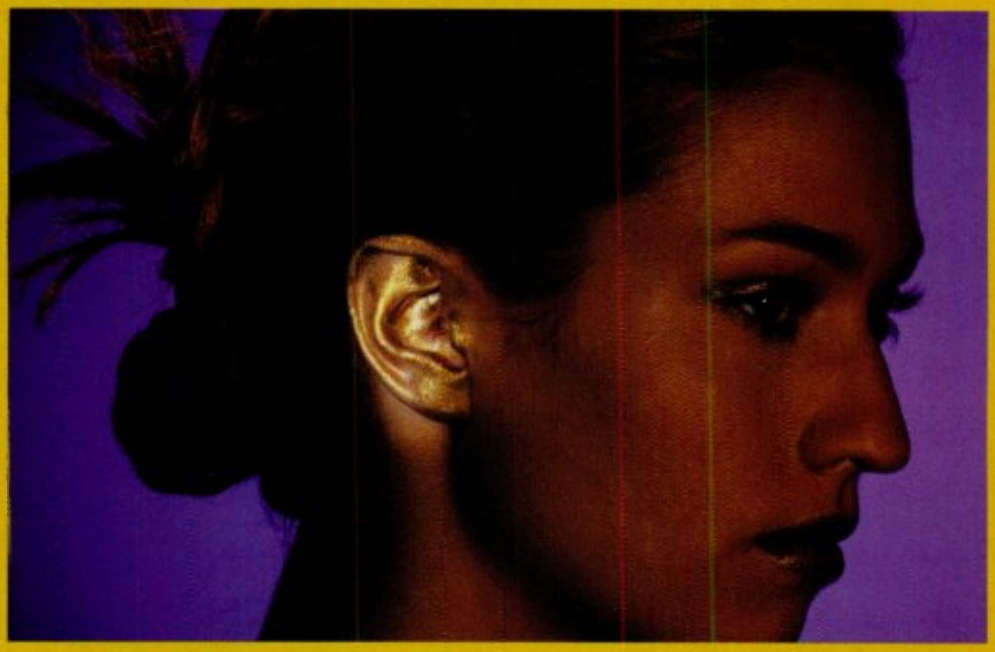

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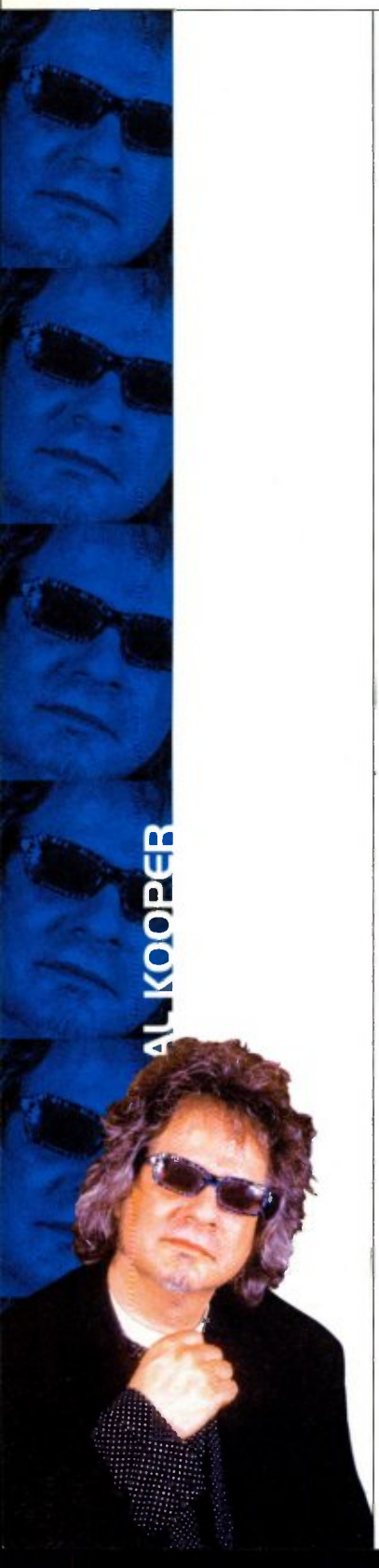
Al Kooper shares his burning ambition

Burnaholics Anonymous



Hi — my name is Al, and I'm a burnaholic. I haven't been clean for a really long time. It all started with cassettes in 1968.

I bought one of the first portable cassette players (a three-piece, not a boombox) to bring on tour when I was in Blood Sweat & Tears. In those days, Columbia, the label I was on, manufactured their own brand of blank cassettes. When the label rep from each city would meet us at the airport, I'd ask for any blank cassettes he could spare. "Spare cassettes?" I'd ask, holding out both my hands. I had no shame. By the end of the tour, I had quite a stash of blank cassettes, but very little pride.

I briefly dabbled in blank eight-tracks, but I cold-turkeyed those without too much difficulty. I have a mix tape from every month from 1973-1998. Things were pretty stable until about two years ago when I bought my first CD burner.

It was an HHB 850, and it was purple. I began to burn mix CDs, but I couldn't get a good high. There was no control over the various levels of the sources, and the tracks didn't seem to match like they did on my cassette mix tapes.

"What kind of technological leap is this if I have less control than I did with cassettes?" So, some shady guy turned me on to a blast of Toast software, but that didn't get me off either. Now I could control many parameters of my audio sources, but I was relegated to a computer that was in my home office, far from the comfort of my home audio system. Then I saw an ad for the Alesis Masterlink 9600. And that's when I lost all control and became a burnaholic.

I went to the store and checked it out. This was just what the doctor ordered. It had a burner, a hard drive to edit, sequence, normalize, equalize, compress, limit, and save playlists — all in one unit! And, unlike many products out there, it was attainable for under $1,500! I just popped that baby into my stereo system (about a year ago), and that was the last any of my friends ever saw of me.

I quickly graduated to those blank CD-R holders with fifty discs on 'em — then to buying two at a time. I rummaged through label and insert design software and settled on CD Stomper because it's all-in-one and was ostensibly easy to operate. The Mac version, unlike the PC version, was particularly buggy and would crash at inopportune moments. At first, I'd just sit there and stare at the crashed screen while a cold sweat broke out all over my body. Then I began to save my work in small increments. I challenged the bugs, and, eventually, I beat them all. I outsmarted them because I had to have finished, clean looking CDs or I would get sick and have chills and fever.

> "THEN I SAW AN AD FOR THE ALESIS MASTERLINK 9600. AND THAT'S WHEN I LOST ALL CONTROL AND BECAME A BURNAHOLIC."

NO DOCTOR CAN HELP ME NOW

I get up every morning and go check the CD I rendered before I went to sleep the night before. When you're hardcore, you learn to check the last track to see if it was a smooth burn. If it's not, the last track will be marred in some way. So us lifers just go right to the last selection to see if it tracks okay. If it doesn't, I open the window and fling the offending disc out into the cold winter morning. My dog runs for her life. She's been threatened by "coasters" before. If it's a smooth burn, I apply the (already designed) label and put it in its (already prepared) jewel case. I make three of everything. One that's good to go, a backup that goes into one of those huge CD loose-leaf books, and one more copy for my son who's in his mid-thirties and whose musical tastes pretty closely approximate my own. Then I have breakfast, read my email, and head to my CD collection in the living room.

There are 5,000 CDs. Many of them are imports from around the world; re-issues not

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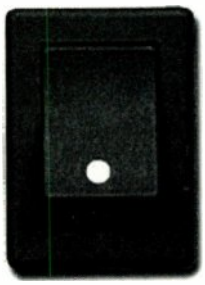
deemed viable in the States. And they're alphabetized. I skim the racks, like the laser junkie that I am, looking for an artist or subject matter I may have missed. Motown Pool Party? Best of Steely Dan? The B-3 Boys? What's it gonna be today? After selecting an artist or topic, I pull those CDs and begin to record my various selections onto the hard drive. It takes about a minute to upload a selection. Silently, the Alesis sucks the data. When 80 minutes of data is entered, I begin working like Edward Scissorhands — pushing buttons, re-sequencing, EQ-ing, normalizing, and editing out the bits I don't care for with the hands of a grizzled, driven veteran. Finally, hours later, I step back. It's ready to burn. But, one last ritual. I grab a Sharpie and a legal pad and write down the tunes in sequence. Then I take that deep breath, insert the gleaming, blank CD-R into the burner, and push the Render button, eyes flashing wildly.

After that, it's quickly into the home office and the computer to design the package and the label. I select a cover from some obscure photo in one of the CD booklets. I scan it into Photoshop and enhance it in any way I can. Then the label. Gotta work around that hole in the middle and still have a slick design. My son enjoys the packaging as much as the free music. *Much* better than Napster, he thinks. When the inserts and labels are designed and printed, it's back to the burner to retrieve the freshly burned prize. Everything is carefully disseminated, and another job is burned into laser and my wracked brain. I collapse on the couch and pretend to watch the news. Almost time for dinner.

If there are any of you out there who are strung out like this, let's get in touch and go to meetings together. The rest of you — be careful. This stuff is highly addictive. It may start innocently enough with a Beatles or Stones mix CD, but, for God's sake, control yourselves. I've got sixteen CDs of selections from my vinyl collection that never made it onto CD anywhere in the world; eight CDs of the same for my 45 rpm singles; thirty CDs that anthologize my cassette mix tapes from 1973-1998; and then the best-ofs and topic CDs begin. You don't wanna end up like me — Al...I'm a burnaholic. ■



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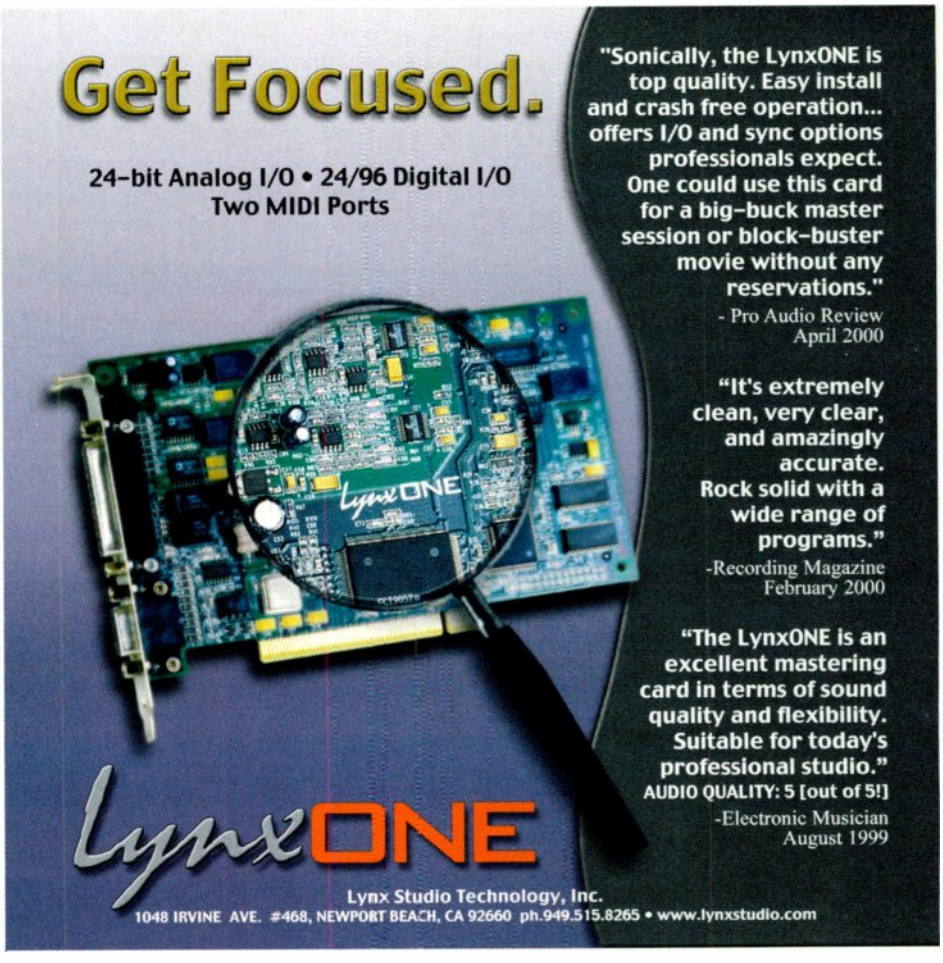

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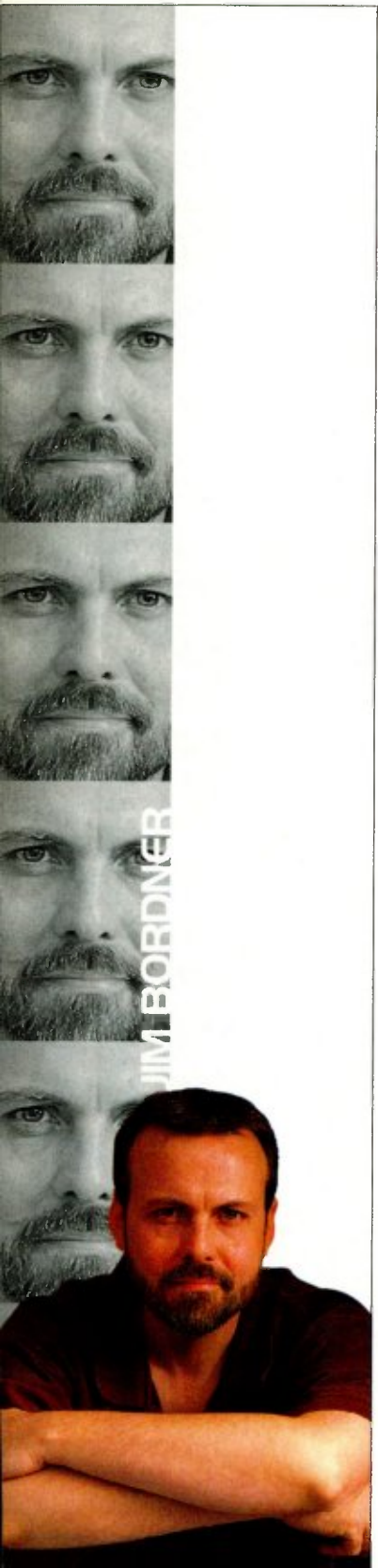
JIM@GRAVITYMUSIC.COM

Advertising and promotion for people who hate advertising

Come Blow Your Horn



This month's column was inspired by a recent discussion on the EQ Forums (**www.eqmag.com**) on the subject of marketing and advertising a studio or music production business. Lots of the posters had tried some kind of advertising — many were disappointed in the results, and most had come to the conclusion that nothing worked for a studio but word-of-mouth. There's a grain of truth in that, but much of the disappointment arises from a small misunderstanding about the nature of advertising. I worked in the ad business for many years before opening Gravity Music, and fancy myself a true advertising theorist. So let me take a crack at clearing this up.

First of all, Marshall McLuhan said one of the most intelligent things I've ever heard on the subject. In *The Medium Is the Message,* his op-pop collage follow-up to *Understanding Media,* the Professor says, "News is bad news: advertising is good news." Exactly — advertising is good news.

We're all bombarded with messages we don't care about — you don't want a new car or a political candidate, or a cold soda right now, and so all that broadcast and print advertising is just brain clutter. But, when your refrigerator breaks, those ads from Mondo Appliance Warehouse suddenly aren't advertising anymore: they're *information* — news you can use.

Armed with this knowledge, you can now create advertising that works. Here's the deal: Every potential customer has a problem that needs to be solved. Your job is simply to tell them that you can solve it. That's good advertising. But to do it, you've got to know who you're talking to and what you're going to say.

KNOW YOUR TARGET

The stuff you see on TV is general consumer advertising. But what you're going to be doing is business-to-business (b-to-b) advertising, which is much different. Consumer advertising is aimed at everyone — you can target consumer advertising, but those target audiences still end up being huge (all North American males between 25 and 45, for example). In b-to-b advertising, you're shooting for a narrow, specific group — all professional musicians in the Tri-County area, for example. Reaching the small group is more cost-effective than reaching the big one, so make a solid evaluation of who you're talking to before you begin.

IDENTIFY "THE INFLUENTIALS"

Word-of-mouth is the best kind of advertising. When the good news comes from a friend or trusted acquaintance, then it's solid. But word-of-mouth doesn't happen all by itself. You can help generate it.

In b-to-b advertising, one of the groups you try to reach are "the influentials" — people who may not always make the final purchase decision, but who can sway the decision. Who are your influentials? If you're recording bands, it's probably the local hotshots, the performers that get local press and raise envy in the nightclubs. Buddy up to those people. Cut them a break on demo work and get them in your studio. The next time they get interviewed by the local music weekly and they're quoted as saying, "Yeah, we did all the tracking at Clambake Studios and I think this is our best one yet," your phone will ring off the hook. Find influentials in your target audience and woo them.

IDENTIFY MARKET PROBLEMS

A market is a dynamic thing — always changing, always moving, and always with new problems to be solved. When your potential customers have problems that you can provide the solution for, money gets made. All you need to do is identify the problem and then inexpensively let people know you can fix it. Here's an example from my own case files.

Radio production is advertising's poor cousin. Creatives don't know how to write it, local producers (often radio station guys) don't know how to make it sound good. Identifying a market problem (*e.g.,* a few big producers have made a very good business of doing turnkey radio production from coast to coast). Smaller markets that don't

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Have a question or comment for Jim Bordner? Email him at jim@gravitymusic.com.

have pro-level radio production studios lose a lot of their production dollars to these Goliaths.

I happen to be pretty good at radio, and I like it. While it's not as lucrative as the big music projects, it's fast and fun and fills holes in my schedule nicely. So we asked some of our regular customers why they take their radio production out of town, and almost unanimously they said it was because of the limited talent pool in our market — they simply got a better choice of voice-over talent by going elsewhere.

So, we started looking for the talent. We auditioned the theater types, cherry-picked a local improv comedy troupe, and discovered a 15-year old kid who sounds like Orson Welles. We did a few spots, made a new demo, sent a letter out to the local agencies announcing that we now do radio that's cheap, quick, and good.

The result was fairly remarkable. Our radio production revenue for the six months following the mailing more than doubled, and total revenue for the year was up 15% — a significant increase for a one-man shop like mine. At the same time we expanded our services and gained the confidence of a couple of new clients who ended up doing jingle projects with us, which increases positive word-of-mouth — and so it goes.

This is how good advertising works. You identify a target audience, you find a specific problem they have, and you use the most cost-effective manner possible to communicate your solution to them. If it's a small target, maybe all you need is a few phone calls. A larger group may require a letter and follow-up. An even larger group might be reached effectively through a series of postcard mailings. It doesn't have to be expensive, and it doesn't have to be noise and clutter.

When you're planning advertising and promotion, don't get fooled by what you see on TV. Good advertising isn't a combination of a shocking concept and a goofy picture tied together by a cynical joke. It's simply finding the people you want to talk to and giving them some good news for a change. ■

CRAIG ANDERTON

▶ continued from page 132

point, click, and you get a readout of what's happening and where.

THE NEXT STEP

You don't really need an expensive program to take advantage of these techniques; Cool Edit Pro can generate various signals and sweeps, as well as do analysis. Although Mac editors (BIAS Peak, TC Works Spark) aren't quite as developed in terms of analysis as those on Windows, the Mac programs are catching up fast.

Once you start analyzing signals, you'll be hooked. It's so much easier to match levels if you can examine peak and average levels, and the frequency analysis curves can alert you to possible problem zones that may require equalization. And it sure is nice to have a program locate clipping for you instead of scrolling through the entire file and looking for flat tops. For mastering, spectrum analysis gives visual confirmation of what you're (hopefully) hearing in your head. On your mark, get set, start testing! ■

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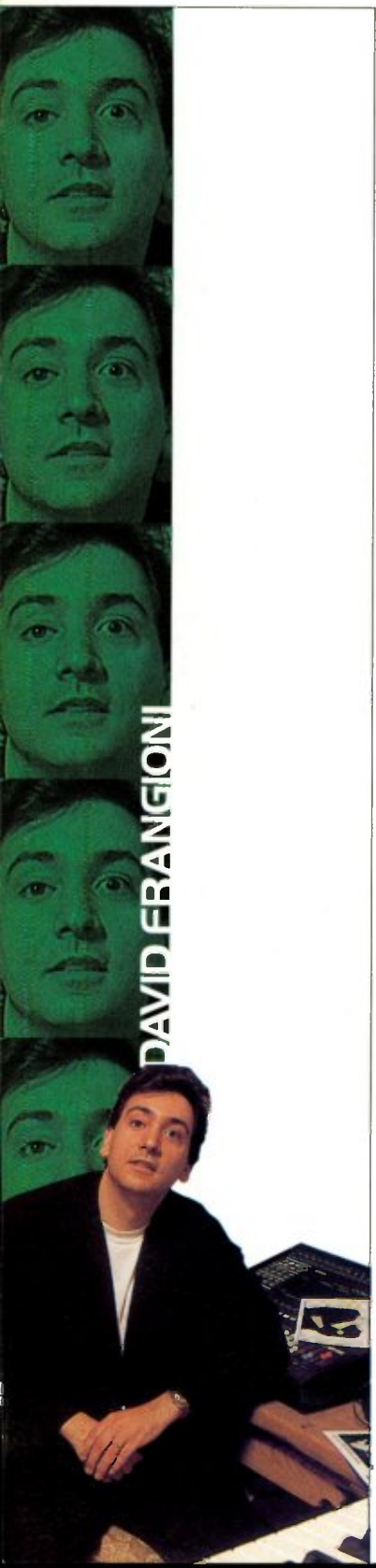
One bit at a time

96k in a 48k World



96 kHz...48 kHz...44.1 kHz...88.2 kHz... 192 kHz...2.82 MHz...DVD-A...DVD-V... CD...DSD! Lots of numbers and letters to figure out, but at the end of the day, it all can be broken down in a simple and clear manner. This month, we're going to assess the foundation of working in several of these formats. There's a lot to know, but we'll begin with an overview and generalization of where to start. Please understand that this material can be somewhat confusing at first, but after a couple of times reading through it, you'll have a grasp of what it all means — hang in there.

First of all, Table 1 examines the basics of which optical disc format is using what sample rate, channel configuration, and bit depth. Now that we've established the general standard(s) for each format, it's time to consider the production flow when creating content for each one.

Before you begin any production, you need to establish the technological foundation necessary for the specific format. For example, we'll use DVD-V as the format for which you're producing music. The number one consideration should be sample rate. For DVD-V, *always* work at 48 kHz (if you work at 44.1 kHz, you'll have to sample rate convert, which can be a nightmare when your audio is locked to video). Next, determine the bit rate. Most DVD-Vs end up at 16-bit, however, in the production phase, it's a good idea to work at 24-bit, if possible. That way, you'll have a very high-quality master in the event that you *do* need to deliver a 20- or 24-bit version of the audio. Dithering down is better than upconverting the word length.

Once you've established sample rate and bit depth, double check the frame rate, if you're locking to video. Most often, NTSC video content is delivered with 29.97 non-drop or 29.97 drop frame timecode. The final master will be 29.97 non-drop. However, the production master might be drop-frame. Chances are strong that the tools that you have available will handle up to eight tracks of 44.1 or 48 kHz sample rates as well as either 16- or 24-bit audio. That's fine for DVD-V, but what if you're working with 96 kHz or DSD?

There are many A/D-D/A converters out there that handle 96 kHz audio. However, most of them are two-channel, which is a problem for surround formats. But, even if you have the converters, how are you going to archive the high-resolution audio? The TASCAM DA-98HR is one way to go — a totally pro machine. The Genex 8500 also works well. The TASCAM uses standard Hi-8 tapes, while the Genex uses magneto optical discs. These two machines are "native" 96 kHz devices, meaning that they actually operate at either 48 or 96 kHz (actually, the DA-98HR can operate up to 192 kHz in stereo, while the Genex can additionally handle DSD).

Another option would be to use half of the available tracks on a "native" 48 kHz machine and store twice the information. A few years back, a method known as "bit splitting" was developed whereby the total amount of bits on a storage device were divided among the total number of tracks (ADAT, for instance, has a total of 128 bits over eight tracks). Instead of 16 bits for each track, 24 bits of audio would be stored across two 16-bit tracks (with eight bits left over and unused). That worked great with a 48 kHz sample rate, but, these days, we not only have to deal with 24 bits, but we also need to double the sample rate. Here's where it gets tricky, depending on what you are using as a storage device.

There are two standards for sending and receiving 96 kHz audio. One standard uses a single cable carrying two channels of 96 kHz audio over one double-speed stream of AES. This is known as Single Wire. The other standard spreads the two channels of 96 kHz data over two cables (operating at the normal 48 kHz). This method is known as Double Wire or Dual Wire. Either way, you end up with two channels of 96 kHz audio.

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For more tech talk, visit the Studio Tech Forum at www.eqmag.com

There are conversion boxes that will accept Single Wire input and output Double Wire or vice-versa. dB Technologies makes such a device and it works great.

If you're using a "native" 96 kHz device, chances are that you'll use Single Wire mode. For example, you can record a total of four tracks (at 24/96) on a DA-98HR. However, if you're using a 24/48 DAW, you'll need to use Double Wire mode. In the DAW, simply allocate four tracks of 24-bit, 48 kHz audio for every two channels of 96 kHz audio. The DAW doesn't know the difference. As long as your audio always remains phase locked (group those tracks, please), the 96 kHz audio will happily coexist in a 48 kHz workstation. By the way, while we're on the subject of SR/Bit-Splitting; the Apogee PSX-100 has a mode that allows two channels of 24/96 to be stored on a regular ADAT or DA88. You'll be using all eight tracks, but at least it can be done.

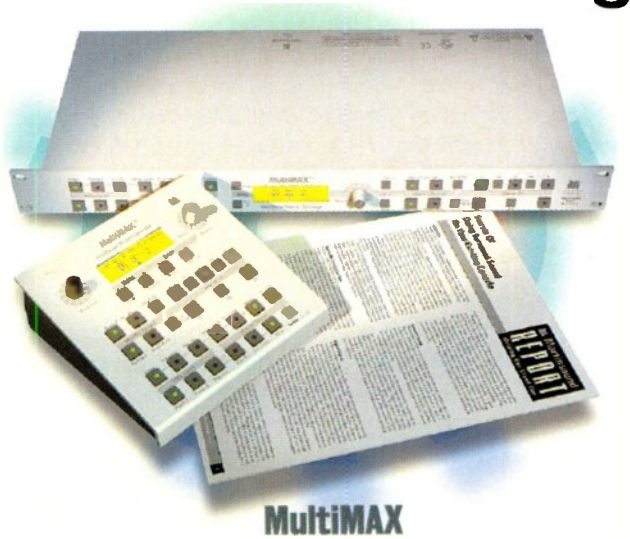
Now that 96 kHz audio is stored on the 24/48 DAW tracks, how do they get to the final master at 96 kHz? For that, you'll need a Double Wire-compatible storage device (or one of the conversion boxes mentioned earlier) to accept the double wire 48 kHz audio streams so that they're recorded as "final" 96 kHz audio streams. Most replication houses won't accept Double Wire, 48 kHz audio as the final 96 kHz master. You'll need to store it onto the master tape as Single Wire, 96 kHz audio.

Let's stop here so that you can review the overall concepts and begin to assemble a vocabulary of standards and definitions for all of these formats. Next month, we'll talk more about this subject, as well as get into DSD and the current state of A/D and D/A converters. ■

TABLE I

FORMAT	SAMPLE RATE	RESOLUTION	AUDIO CHANNELS
CD	44.1 kHz	16-bit	stereo PCM; 16-, 20-, or 24-bit 6-channel DTS
SACD	2.82 MHz	1-bit	2 or 6 channels of DSD (Direct Stream Digital)
DVD-V	48 kHz	16- or 24-bit	stereo PCM; stereo MPEG-2; 2 to 6 channels of Dolby Digital; 2 to 6 channels of DTS
DVD-A	48 kHz	16-bit	6 channels of Dolby Digital
and/or			
DVD-A	96 kHz	24-bit	6 channels of PCM encoded with MLP
and/or			
DVD-A	192 kHz	24-bit	stereo PCM encoded with MLP

Secrets of Doing Surround Sound



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–Dino Elefante, co-owner of The Sound Kitchen

On Your Existing Console

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CIRCLE 53 ON FREE INFO CARD

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THE FEZ GUYS
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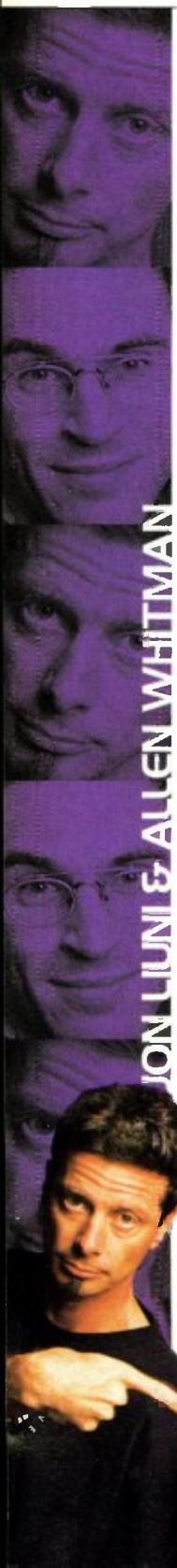
The brave new world of online music distribution rights, part IV

Hello Songwriters, Are You Listening? (Part IV)



We're ready, but a little shy about seeing what SoundExchange, the Recording Industry Association of America's (RIAA) online tool, has to offer us online. What is it and what does it do? How can it help me and why should I care?

SOUNDEXCHANGE

Arriving at www.soundexchange.com, we're greeted by a very low-key design aesthetic, a little bit of text, and some links. So far this is very refreshing from the giant screaming, Tokyo-by-night design of most corporate Web sites. SoundExchange introduces itself as an "organization of large, medium, and small recording companies...dedicated to making the process of licensing music and collecting royalties as accurate, simple, and fair as possible for all involved." Well, that's good. But how does that rhetoric translate into real-world use? Are they in direct competition with the Big Three? Are they a shill for the recording industry?

Touting a staff of "music industry veterans, Internet strategists, technologists, and royalty professionals," SoundExchange says it "licenses, collects, and distributes public performance revenue for sound recording copyright holders within such digital channels as cable, satellite, and the Internet."

Describing themselves as "over 280 companies and their 2,100 labels...from artist-owned labels to Sony, Universal, EMI, Warner Music Group, and BMG; Telarc, RAS, Zomba, Koch, Rounder, and Naxos; from classical to hardcore and every genre in between," SoundExchange promises to "negotiate the best terms available for the use of your music" and provides their services on a "non-exclusive" basis. (Described as: "You are free to enter into 'direct licenses' with Webcasters on such terms as you may decide.") This last thing is also refreshing. Non-exclusivity goes a long way toward promising a decent level of service. Too often exclusive contracts lead to the "I've got you now and I don't care" business model. Think power companies. Of course, non-exclusivity, open competition, and free-market capitalism at the level of The Public Trust is not guaranteed to fix anything. Sigh. Where will it all end? But wait! To paraphrase an old friend: "It's only music...there's no lives at stake."

All that's necessary to join is to read, fill in, sign, and return the four small PDF documents. The documents are all detailed logistical contracts about where the monies will go and to whom. It's basic stuff. But there is one bit that catches our FezEye. Within the Authorization Letter is a portion of a sentence that reads: "you grant the SoundExchange the non-exclusive right to license the public performance of all of your sound recordings by means of digital audio transmissions." Okay, that's what we've been given to understand SoundExchange is all about. But the next portion of the sentence tells an extra tale. It says, in addition to the rights granted above, we also grant SoundExchange the right to the "...making of phonorecords of all of your sound recordings, or any part thereof (including the making of multiple such phonorecords of a single sound recording)."

Huh? SoundExchange is going to manufacture albums? What does this have to do with the online music licensing? Suddenly, like the "hot kiss at the end of a wet fist," (with apologies to the Firesign Theater) we remember! SoundExchange is owned by the RIAA. The RIAA is the political lobbying face of the Big Five, no Four...is it three labels yet? Any spawn of the physical recording industry is going to hold on to the ability to make plastic versions of audio intellectual property unless and until you pry that right from their cold dead fingers. Too bad. It seems totally beside the point for SoundExchange to feel it necessary to retain the right make CDs.

Simply put, SoundExchange desires to be the middleman between the digital use of your music (*e.g.,* Webcasting) and the corporations (*e.g.,* spinner.com) who wish to license it.

Webcasters take note: If you want to stream original sound recordings over the Internet, there are some things you need to

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www.music-law.com — A good resource with a practical Q&A series.
http://lcweb.loc.gov/copyright —For all things government-related to the subject.

know. A lot of things actually. And, according to current law, you must do them. For more information on what may happen if you fail to obey the law, see the detailed list of legal repercussions at www.riaa.com/ Copyright-Laws-2.cfm#fair. For an exhaustive explanation of the current laws surrounding Webcast licensing see: www.riaa.com/Licensing-Licen-3a.cfm. Many of the latter page's informational points are standard: loop length, number of repeated performances within a given time frame, taking steps to limit the ease of copying and subsequent unlawful distribution, etc. This is a pretty decent resource on the convoluted nature of online music rights, but keep in mind that it's the RIAA's perspective of the law, and the DMCA (Digital Millennium Copyright Act) in particular.

It was inevitable, of course. If you play the music, the folks with a finger in the pie want to taste the filling. There are some exceptions. Creating "non-interactive" streaming programs over three hours long seems to be all right to do for now, as long as the above-mentioned laundry list of conditions is met.

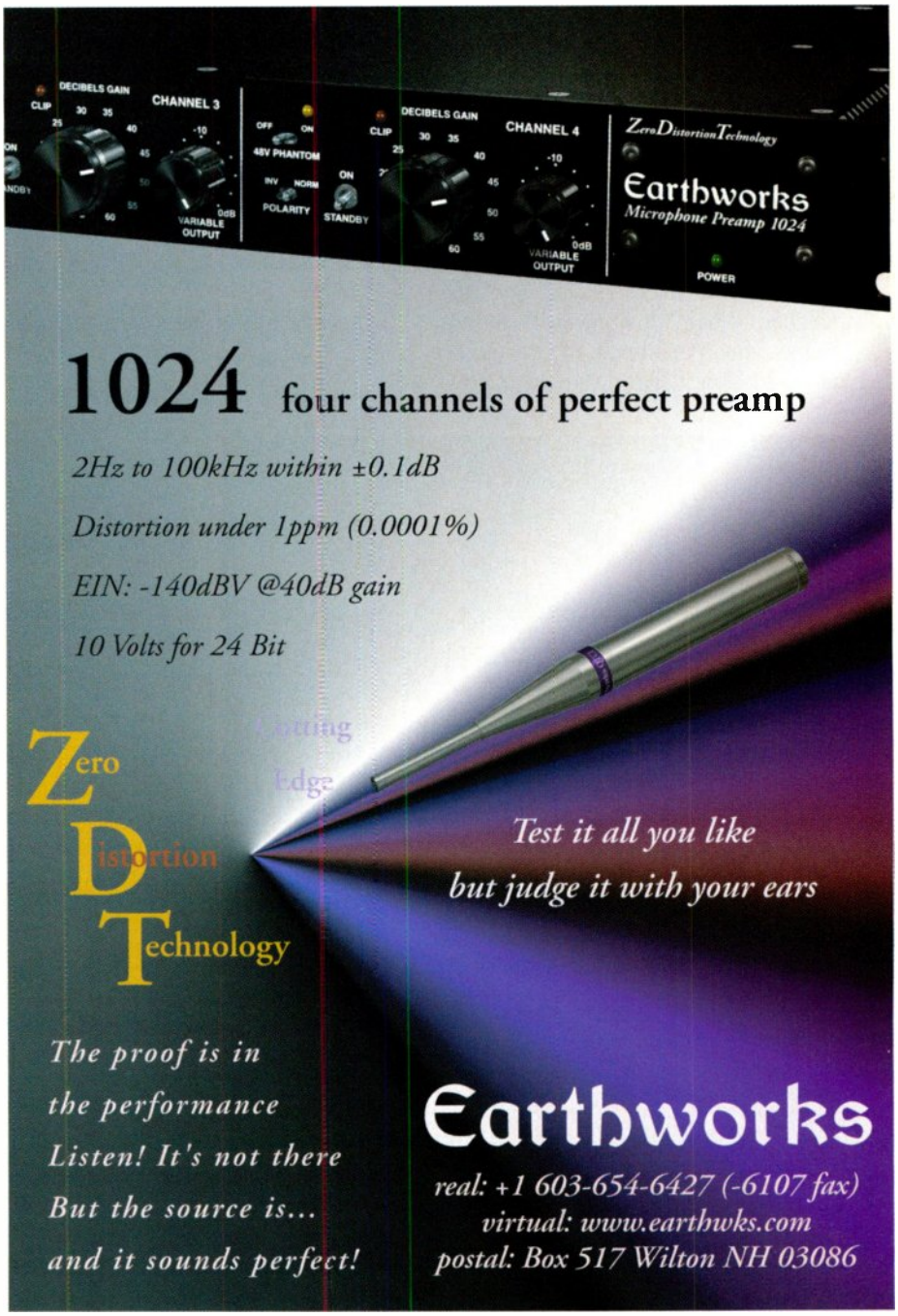
So, who should sign up for this service? They're aiming for people and organizations that own the master rights (the license) to sound recordings. If these license holders wish to have the use of their music in new media easily (and legally) paid for, SoundExchange is here to collect the money. Publishing is not their bag. Though it's never stated directly, it would appear that SoundExchange plans to pay license holders once a year, but will collect fees from licensees (Webcasters, etc.) every month. That's good for them. They can play with all that cash any way they desire and once a year the license holder will get what's coming to them.

Many questions remain unanswered: Do they also plan on policing illegal uses of work they collect for? It would also be nice to know how revenue reports break out and whether or not individual members can request audits.

As a rebuttal to SoundExchange's offer of online and digital music rights management assistance, let's turn to a document published online by a group calling itself The Music Managers Forum (MMF, www.mmf-us.org/newsite, watch out for the silly Flash intro).

WHAT WE'VE LEARNED

The options for buying, selling, and granting licenses for music use online (what few there are) don't feel like simplification. The vibe is merely more examples of the already weighty processes by which these organizations do their business. Without being a royalty professional, having a law degree in intellectual property rights, or spending a lot of time and long experience in parsing the jargon of music publishing, a Webcaster or songwriter may well need to hire outside help. But if you're patient and focused, it can be done. Yeah, you may feel lost in a hideous vortex of language and law, but take heart...Internet use is causing even these constipated organizations to rethink their way of doing business and, while the precedent has been problematic, the future holds promise! ■



CIRCLE 07 ON FREE INFO CARD

World Radio History

JEFF LYNNE

▶ continued from page 78

As for Lynne's trademark layered harmonies, he says, "Usually they'll be three-part harmonies. Sometimes maybe I'll want a fourth part moving through. It's basically just a matter of singing the part and then doubling it. But I don't always double each part. Sometimes it can get too lush if there are too many vocal tracks. So there can be as many as ten tracks of harmony, sometimes twelve. I try not to put too much compression on vocal harmonies. I do put a little on, so the little spikes in volume don't stick out too much. But the compressors are barely moving. Otherwise, it starts to lose some of the dynamics that I might want it to have.

"I like the vocals to have a little bit of an edge," Lynne adds. "I don't like soft, plummy vocals very much. Really, there's no EQ involved except maybe dipping some midrange out after I've finished. While I'm working, I'll tend to EQ too much midrange into things. I'm always going, 'Give me more middle!' Then you turn it up loud and it makes your ears bleed. And I say 'Back that bloody middle off.' But the EQ is never on tape. It's only on the monitor. I record it all flat."

At home, Lynne monitors on Tannoy SRM 12B's. "The Little Reds were the ones I've always liked," he says. "But I couldn't get any of them. So I'm using these SRMs, which seem a little bit middly in comparison with other monitors I hear when I take my tracks into other rooms. This is probably a good thing, since they might prevent me from adding so much middle while I'm working."

While Lynne does a lot of work in Pro Tools, most signal processing is done via outboard hardware rather than plug-ins. "I have loads of outboard stuff," he says, "a couple of AMS and TC things. And a nice old-fashioned UREI filter set, which is amazing. You can use the notch filter as a wah-wah if you want. I like doing silly things with it."

The one effect that Lynne is notorious for hating is reverb. "I don't really like it," he sniffs. "I don't mind other people using it. But I don't use it on my records at all. I like the sounds to be dry and up front."

What Lynne does like are old-school tape-based effects, which played a substantial role on classic ELO discs and are featured on Zoom as well. "We used some backwards tape effects," says Lynne, "and tape phasing — two actual tapes, going against one another. You get so much depth. You can't really do that with digital. I mean, you can do really good phasing digitally, but it doesn't have the crunch that analog has. I also like tape slap echo. I used that occasionally on the album. I thought all this stuff was a forgotten art. But it's still there and you can still use it if you want to."

But while vintage sonic gimmicks such as these account for some of the more-obvious elements of Lynne's signature production style, he feels the heart of his trademark sound lies in something far simpler.

"Mainly I like to keep things pretty dry," he says, "and let the rooms where the music was recorded speak for themselves." ■

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DIGI001 Digital Audio Workstation For Mac And PC

A completely integrated digital recording, mixing and editing environment for the Mac and PC, the DIGI-001 offers a 24-bit multi I/O breakout interface along with Pro Tools LE software— based on Digidesign's world renowned ProTools software. The DIGI-001 interface features 18 simultaneous I/Os made up of 8 analog inputs and outputs— two of the inputs are full featured mic preamps with phantom power, and digital I/O including standard S/PDIF as well as an ADAT optical interface that can also be used as a S/PDIF I/O. ProTools LE supports 24 tracks of 16 or 24-bit audio and 128 MIDI tracks and also features RealTime AudioSuite (RTAS) effects plug-ins. For ease of use, MIDI and audio are editable within the same environment and all mixing parameters including effects processing can be fully automated.

FEATURES–
- 18 simultaneous, 24-bit ins and outs with support for 44.1 and 48 kHz sample rates
- 20Hz - 22kHz freq. response ± 0.5 dB
- 2 channel, XLR mic/1/4" line inputs with -26 dB pad, 48v phantom power, gain knob, and HP Filter at 60Hz
- 6 ch. line inputs (1/4") TRS balanced/ unbalanced w/ software controlled gain
- +4dB balanced 1/4-inch Main outputs
- Balanced 1/4" monitor outs with front panel gain knob
- 1/4-inch unbalanced line outputs channels 3-8
- Headphone output with independent gain control knob
- 2 channel S/PDIF coaxial digital I/O
- 8 channel ADAT optical I/O can also be used as 2 channel optical S/PDIF

Pro Tools LE
- Supports 24 tracks of 16 or 24-bit audio and 128 sequenced MIDI tracks
- Sample-accurate simultaneous editing of audio & MIDI
- Real-time digital mixing capabilities include recall of all mixing parameters, support for edit and mix groups and complete automation of all volume, panning, mutes and plug-ins.
- Route and mix outboard gear in realtime
- MP3 and RealAudio G2 file support (Mac)
- Two plug-in platforms offer multiple options for effects processing— Real-Time AudioSuite (RTAS) is a host-based architecture that allows an effect to change and be dynamically automated in realtime as the audio plays back. —AudioSuite is a file-based format, that renders a new file with the processed sound.
- Bundled RTAS plug-ins include, 1 and 4-band EQ; Dynamics II- compressor, limiter, gate and expander/gate; Mod Delay - short, slap, medium, and long delays with modulation capabilities for chorus or flange effects and dither. AudioSuite plug-ins include Time Compression/Expansion, Pitch Shift, Normalize, Reverse.

MIDI Functions
- MIDI functions include graphic controller editing, piano roll display, up to 128 MIDI tracks and editing options like quantization, transpose, split notes, change velocity and change duration.
- MIDI data can be edited on the fly

TASCAM®

US-428 USB Digital Audio Workstation/ Controller

The US-428 is a 24-bit USB-based audio controller co-designed by TASCAM and Frontier Design Group. The control surface includes plenty of faders, transports and other dedicated controls compatible with the most-used functions in today's DAW applications. The US-428 supports a total of four channels of audio in and two outs simultaneously. The interface plugs right into a USB equipped PC or Mac computer— no opening your computer and no sound card to install. Musicians taking the leap from Portastudios to computer-based DAW programs will feel right at home with the tactile control surface.

FEATURES–
- PC and Mac compatible
- Works with most major DAW programs
- 24 bit D/A and A/D converters
- Bundled with Steinberg's Cubasis VST sequencing software for Windows (MacOS version shipping soon)

I/O–
- Total of four channels of audio in (analog or S/PDIF) and two out simultaneously via USB
- Two XLR mic inputs, two balanced 1/4" TRS inputs, two unbalanced 1/4" inputs (switchable to Hi-Z)
- S/PDIF digital I/O
- Two independent MIDI I/O (32 channels)

Controls–
- Unlimited banks of eight faders
- Transport, mute/solo and locate keys
- An EQ module supports control of up to four bands of fully parametric EQ
- Four aux sends and a panpot
- Can be customized to control everything from virtual synths to MIDI lighting panels

MOTU AUDIO Hard Disk Recording Systems

The MOTU Audio System is a PCI based hard recording solution for the Mac and PC platforms. At the heart of the system is the PCI-324 PCI card that can connect up to three audio interfaces and allows up to 72 channels of simultaneous I/O. Audio interfaces are available with a wide range of I/O configurations including multiple analog I/O with the latest 24-bit A/D/A converters and/or multi channel digital I/O such as ADAT optical and TDIF I/O as well as standard S/PDIF and AES/EBU I/O. Each interface can be purchased separately or with a PCI-324 card allowing you to build a system to suit your needs. Includes drivers for all of today's hottest audio software and AudioDesk, multitrack recording and editing software for the Mac.

THEY ALL FEATURE–
- Mac OS and Windows compatible • Includes software drivers for compatibility with all of today's popular audio software plus AudioDesk, MOTU's sample-accurate audio workstation software for Mac OS • Host computer determines the number of tracks that the software can record and play simultaneously, as well as the amount of real-time effects processing it can support • Front panels display metering for all inputs and outputs
- **AudioDesk Audio Workstation Software** for Mac OS features 24-bit recording, multi-channel waveform editing, automated virtual mixing, graphic editing of ramp automation, real-time effects plug-ins with 32-bit floating point processing, crossfades, support for third-party audio plug-ins (in the MOTU Audio System and Adobe Premiere formats), background processing of file-based operations, sample-accurate editing and placement of audio, and more

1296 24-bit/96kHz Interface Features–
- 24-bit, enhanced multi-bit 128x oversampling 96kHz converters • A-weighted signal-to-noise ratio of 117 dB • 12 Balanced XLR inputs and outputs can support two simultaneous 5.1 mixes • AES/EBU I/O with sample rate conversion both in and out • Compatible with existing PCI-324 cards (requires new PCI-324 driver) • Connect up to 3 1296 interfaces to one PCI-324 card for a total of 36 inputs and outputs or mix and match the 1296 interface with up to three of the other MOTU audio interfaces

2408 mkII FEATURES–
- 7 banks of 8 channel I/O: 1 bank of analog, 3 banks of ADAT optical, 3 banks of Tascam TDIF, plus stereo S/PDIF • Custom VLSI chip for analog I/O capabilities • • Format conversion between ADAT and DA-88
- 8x 24-bit 1/4" balanced analog I/Os • 24-bit internal data bus for full 24-bit recording via digital inputs • Standard S/PDIF I/O for digital plus an additional S/PDIF I/O for the main mix • Sample-accurate synchronization with ADATs and DA88s via an ADAT SYNC IN and RS-422

1224 FEATURES–
- 24-bit analog audio interface • State-of-the-art 24-bit A/D/A • Simultaneously record and play back 8 channels of balanced (TRS), +4 dB audio • 24-bit balanced +4 XLR main outputs • Stereo AES/EBU digital I/O • Word clock in/out • Dynamic range of 116 dB (A-weighted) • Front panel displays six-segment metering for all inputs and outputs • Headphone jack with volume knob

EZBus 24-Bit 96kHz Computer Audio Interface/ Control Surface & Digital Mixer

The EZ Bus combines a PC and Mac compatible USB Computer Interface, Digital Mixer and Control Surface. The USB interface supports two channels of 24-bit/48kHz digital audio recording and playback and 32 channels of MIDI I/O. The Digital Mixer offers a with a wide range of high-quality 24-bit/96kHz analog and digital I/O, DSP and automation capabilities. While the control surface provides virtual mixing, routing and transport control for your favorite computer based DAW or MIDI Machine Control compatible multitrack via dedicated faders, buttons and rotary encoders.

Computer Audio Recording Interface
- Two channel 24-bit/48kHz recording/playback via USB on Macintosh or PC computers
- 14 TRS balanced line inputs, 2 mic preamps with +48V phantom power and two instrument/line inputs
- 24-bit/96kHz A/D/A conversion
- Optical I/O for ADAT Lightpipe and S/PDIF (automatically senses source type)
- Coaxial S/PDIF in and 2 assignable coaxial S/PDIF outs
- Analog outputs include Stereo Main Mix and Alt outs, 2 Aux Sends and a Headphone output
- Two independent MIDI ins and outs
- Word clock output
- Programmable footswitch jack
- Hot-swappable plug and play setup

Software Control Surface
- Fully programmable faders, switches, encoder knob, and transport controls for sending MIDI Controller data via USB and the MIDI outs
- Includes presets for Cubase 5, Logic Audio, Nuendo, and Cakewalk
- Transport controls with jog/shuttle wheel for controlling sequencers as well as any MMC device
- Set and recall up to eight Locate points

Stand-Alone Digital Mixer
- 8 primary audio channels from any analog or digital input
- Mute and Solo on each primary audio channel
- 4-band EQ (sweepable high and low shelving plus two fully parametric bands) and Programmable dynamics (compressor/expander/gate) on each primary audio channel and Main Mix
- One stereo and two mono Returns
- 4 Sends per channel, assignable pre- or post-fader
- 4 virtual audio channels (EZbus Returns)
- 4 multi-input analog channels, accept up to three independent source signals per channel
- EZbus Audio Routing Matrix provides easy to use, flexible input/output routing capabilities
- Save and recall 32 internal snapshots of all mix and system parameters
- AudioAlert function notifies user of errors, such as overloading an analog input, digital dropouts, or clipping due to excessive EQ.
- ADAT Lightpipe provides 8 direct outputs for primary mixer channels— ideal for use as a front end for an ADAT or Lightpipe-equipped audio card
- Asynchronous sample-rate support via S/PDIF with high quality sample-rate conversion.

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CD RECORDING/MASTERING

YAMAHA

CDR-1000 Standalone CD Recorder

The Yamaha CDR1000 is a fully professional standalone CD recorder that's fully compatible with CD-R and CD-RW discs. Features like audio delay (buffering), track numbering and indexing as well as the implementation of Apogee's industry standard UV 22 Super CD Encoding system surpass the expectations of tape based systems and ensures the CDR-1000's place in commercial facilities and project studios.

FEATURES–

- Compatible with CD-R, CD-RW (Audio and Data discs)
- Frequency Response 20 Hz - 20kHz
- Built-in sample rate converter automatically converts 30-50 kHz audio to 44.1kHz
- S/N 97 dB typical (analog recording and playback)
- 97dB dynamic range
- An ideal CD playback deck with the ability to configure a fully digital system without having to change the master/slave clock settings.
- XLR-balanced analog inputs (selectable +4dB/-10dBV) as well as +4dB balanced XLR analog outputs
- XLR-balanced AES/EBU digital input and output as well as coaxial S/PDIF digital input and output
- Stereo headphone output with level control
- Word clock input (BNC) for AES/EBU pass-through
- Incorporates **Apogee UV22 Super CD Encoding** that permits high-quality 16-bit encoding of sources originally recorded at higher bit resolutions
- High-precision recording start feature ensures professional takes without missing a beat.
- Audio delay lets you buffering the input up to 5 secs
- Manual and automatic track number increment functions- The threshold level for auto track increment can be set to -96 or to any value between -70 and -30dB, when the input signal goes below the threshold for more than three seconds.
- An index recording function lets you place multiple IDs within a single track.
- Fade In/Fade Out
- Easy to read 16-segment level meters with peak hold function
- Quad-speed finalize capability
- Selectable copy protect functions including Permit (unlimited copy), Once (SCMS compatible) and Protect (no copy).
- A digital cascade output function with multiple machine synchronization capability allows easy duplication
- Includes full-function wireless remote controller that provides access to all main operating features
- A parallel I/O port allows for external control by input and output pulse.
- A foot switch connector is also provided for recording start and stop control using an optional foot switch.

ALESIS

Masterlink ML-9600
High-Resolution Master Disk Recorder

The MasterLink ML-9600 combines stereo hard disk recording, CD burning, DSP, and mastering functions to deliver compact discs in the standard "Red Book" 16-bit/44.1kHz format, or high resolution 24-bit/96kHz CDs that utilize Alesis' revolutionary CD24 technology. The ML-9600's amazing sonic quality and powerful built-in tools offers a uniquely versatile and affordable solution for everyone from large commercial facilities to project studios and recording musicians.

FEATURES–

- Reads/writes 16-bit 44.1kHz Red Book Audio CDs as well as files in Alesis' CD24 24-bit/96kHz high-resolution mastering— an AIFF compatible file format that can be read by MacOS, Windows and Unix computer platforms.
- 24-bit 128x oversampling A/D/A converters
- Built-in 3.2GB IDE hard drive
- 4x CD burning using standard CD-Rs
- Up to 20-40k Hz frequency response
- 113dB S/N ratio (A-weighted)
- Supports 16-, 20- and 24-bit wordlengths and 44.1, 48, 88.2, 96 kHz sample rates
- Built-in sample rate conversion & noise shaping
- Create and store up to 16 playlists containing as many as 99 tracks

Inputs and Outputs

- **Analog**- XLR-balanced and unbalanced RCA connectors
- **Digital**- AES/EBU (XLR) and coaxial S/PDIF (RCA) I/O
- 1/4" headphone out w/ level control

Editing

- Gain control
- Cropping allows adjusting start and end points.
- Join and Split for combining and separating song sections.

DSP Finishing Tools

- Equalization, Compression, Normalizing and Peak Limiting

Includes

- Infra red remote control and rackmount brackets

MICROBOARDS Technology, Inc.

StartREC
Digital Audio Editing/ CD Duplication System

The Microboards StartREC is the first digital audio editing system combined with a multidrive CD recordable duplication system for professionals. Audio is recorded to the internal 6.2 GB IDE hard drive using analog or digital inputs. Sample rate conversion is automatic. Tracks can be edited and sequenced using the StartRECs user friendly interface and up to 4 CDs can be recorded simultaneously. StartREC is the ideal solution for studio recording, mastering, post production or any pro audio environment requiring digital audio editing and short run CD-R duplication.

FEATURES–

- 2X, 4X, or 8X recording speeds
- 6.2GB IDE hard drive
- Editing functions include move, divide, combine or delete audio tracks, add or drop any index or sub index, and create track fade in or fade out
- Coaxial S/PDIF and AES/EBU digital input plus optical S/PDIF I/O
- XLR balanced and RCA unbalanced inputs and outputs
- Automatic sample rate conversion from 32 and 48kHz
- Automatic CD format detection feature and user friendly interface provide one touch button operation
- Front panel trim pot and LCD display provide accurate input signal and time lapse metering
- SCMS (Serial Copy Management System) is supported, regardless of the source disc copy protection status

StartREC Models Include: ST2000- w/ (2) 8x writers ST3000- w/ (3) 8x writers ST4000- w/ (4) 8x writers

DIGITAL MULTI-TRACK RECORDERS

TASCAM®

MX-2424 24-Bit 24-Track Hard Disk Recorder

Co-designed by TASCAM and TimeLine Inc., the MX-2424 is an affordable 24-bit, 24-track hard disk recorder that also has the editing power of a digital audio workstation. A 9GB internal hard drive comes standard as well as a SCSI Wide port that supports external LVD (Low Voltage Drives) hard drives from up to 40 feet away. An optional analog and several digital I/O cards are available so the MX-2424 can be configured to suit your work environment. SMPTE synchronization, Word Klock, MIDI Time Code and MIDI Machine Control are all built in for seamless integration into any studio.

FEATURES–

- Records 24 tracks of 24-bit audio at 44.1 or 48 kHz, or 12 tracks at 88.2 or 96 kHz. Up to 24 tracks can be recorded simultaneously using any combination of digital and analog I/O.
- Supplied 9GB internal drive allows 45 minutes of audio across all 24 tracks
- Wide SCSI port on the back panel allows you to add multiple drives. A front 5-1/2" bay available for installing an additional drive, or an approved DVD-RAM drive for back-up.
- ViewNet MX, a Java-based software suite for Mac and PC offers DAW style editing of audio regions, dedicated system set-up screens that make set-up quicker and easier and track load screens that make virtual track management a snap. Connects to a computer via a standard Ethernet line.
- Can record to Mac (SDII) or PC (.WAV) formatted drives. The Open TL format allows compatible software to recognize virtual tracks without have to load, reposition and trim each digital file.

Transport Controls-

- Jog/scrub wheel
- MIDI In, Out, and Thru for MMC & MTC

Editing-

- Built-in editing capabilities include cut, copy, paste, split and ripple or overwrite
- 100 levels of undo
- Supports destructive loop recording and non-destructive loop recording which continuously records new takes without erasing the previous version.

Build-In Synchronization-

- TBUS protocol can sample accurately lock up to 32 machines together.
- Can generate or chase SMPTE timecode or MTC.
- Word Clock In, Out, and Thru ports

I/O Options-

- Optional analog and digital cards provide 24 channels of I/O each. There is one analog slot and one digital.
- IF-TD24- T/DIF module
- IF-AD24- ADAT Lightpipe module
- IF-AE24- AES/EBU module
- IF- AN24- A-D, D-A I/O module with DB-25 connectors

Software Updates-

- System updates are made available through a front panel Smart Card slot or via computer directly from the TASCAM web site.

EFFECTS PROCESSORS

lexicon

MPX-500
24-Bit Dual Channel Effects Processor

The MPX 500 is a true stereo 24-bit dual-channel processor and like the MPX100 is powered by Lexicon's proprietary Lexichip and offers dual-channel processing. However, the MPX 500 offers even greater control over effects parameters, has digital inputs and outputs as well as a large graphics display.

- 240 presets with classic, true stereo reverb programs as well as Tremolo, Rotary, Chorus, Flange, Pitch, Detune, 5.5 second Delay and Echo
- Balanced analog and S/PDIF digital I/O
- 4 dedicated front panel knobs allow adjustment of effect parameters. Easy Learn mode allows MIDI patching of front panel controls.
- Tempo-controlled delays lock to Tap or MIDI clock

t.c. electronic M-One Dual Effects Processor

The M-One allows two reverbs or other effects to be run simultaneously, without compromising sound quality. The intuitive yet sophisticated interface gives you instant control of all vital parameters and allows you to create awesome effects programs quickly and easily.

- 20 incredible TC effects including, Reverb, Chorus, Tremolo, Pitch, Delay and Dynamics
- Analog-style user interface
- 100 Factory/100 User presets
- Dual-Engine design
- 24 bit A/D-D/A converters
- S/PDIF digital I/O, 44.1-48kHz
- Balanced 1/4" Jacks - Dual I/O
- 24 bit internal processing

ANTARES

AMM-1
MICROPHONE MODELER

Based on the same technology as the Antares Mic Modeler plug-ins for Mac and PC, the 1rackspace AMM-1 transforms the sound of any reasonable quality microphone into any of a variety of high-end mics. Simply select the kind of mic you're using and then select the mic you want to model. Even the filter settings, polar pattern and proximity can be selected for the source and mic model. The ability to track directly through the AMM-1 makes it ideal for project studios, live sound or anywhere you want to have an A-list of classic microphones.

- Reproduces all of the subtle characteristics of your favorite microphone including filter settings, polar pattern, proximity as well as windscreen on/off
- Variable tube saturation control
- Over 100 mic models built-in
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MICROPHONES

AKG

C2000B Condenser Mic

Includes Free H-100 Shockmount

The C 2000 B is an all-purpose cardioid condenser microphone perfectly suited for both recording and live sound situations. The newly developed small-diaphragm transducer capsule is made using a unique manufacturing process that ensures high sensitivity, lowself noise, and excellent bass response.

FEATURES-
- Cardioid polar pattern
- Switchable bass rolloff filter (6 dB/octave @ 500 Hz) and -10dB pad
- Built-in pop screen reduces unwanted noise
- Rugged construction, elegantly styled die-cast metal housing, and silver-gray finish
- **30 Hz to 20 kHz frequency response**

SHURE

KSM44/SL Multipattern Condenser Mic

The KSM44/SL is a multiple pattern dual large diaphragm condenser microphone built without compromise using premium electronic components and gold-plated internal and external connectors. The KSM44/SL is a premium vocal mic and is equally adept for close miking a wide range of acoustic instruments, amplifiers and for ambient room miking.

FEATURES-
- Dual 1-inch,gold-layered, Mylar diaphragms
- Class A, discrete, transformerless preamp
- Cardioid, omni- and bi-directional polar patterns
- Subsonic filter eliminates rumble from mechanical vibration below 17 Hz.
- Integrated 3-stage pop grille and shock mount
- 15 dB pad and 3-position switchable low-frequency filter virtually eliminates unwanted background noise and controls proximity effect
- Includes ShureLock elastic-suspension shock mount and swivel mount, protective pouch and locking aluminum carrying case
- **20 Hz - 20 kHz frequency response**

SIGNAL PROCESSING

HHB

Radius 40 Tube Voice Processor

The Radius 40 is a self contained tube processor designed for direct to tape recording in project and professional studio environments. By combining a mic pre amp and line input with a compressor, expander / gate and an equalizer the Radius 40 will also enhance the sound of any source from vocals to bass guitar and keyboards.

FEATURES–
- Four stage tube voice processor with a pre amp, compressor, expander and equalizer
- Balanced XLR mic/ 1/4" line inputs and both XLR and unbalanced jack line outputs
- Input and output gain control
- Bypassable compressor, featuring variable threshold, ratio, gain, attack and release times
- A four band bypassable equalizer section with 12dB boost and cut per band.
- Low Freq band - 50Hz, 120Hz, 250Hz or 500Hz, Low Mid band - 250Hz, 500Hz, 1kHz or 2.2kHz, High Mid band - 1.5kHz, 2.2kHz, 3.6kHz or 5kHz, High Freq band - 2.2kHz, 5kHz, 8kHz or 12kHz
- EQ may be switched before or after the compressor
- Backlit VU meter displays input, output or gain reduction signals
- Stereo link for connecting two Radius 40s
- Stabilized 150V DC power supply

WAVES

L2 ULTRAMAXIMIZER Brick Wall Peak Limiter

The L2 is a proprietary brick wall look-ahead peak limiter with IDR (Increased Digital Resolution) dithering technology based on the award-winning L1 software. Featuring 48-bit internal processing and support for 96kHz sampling rates as well as digital and analog I/O with 24-bit A/D and D/A converters means the L2 is ideal for the maximum number of audio applications, from mixing to mastering to concert sound. The L2 Ultramaximizer performs high quality re-quantization to 24, 22, 20, 18, and 16-bits, plus the Waves ARC (Auto Release Control) technology continuously controls the optimal release time for maximizing levels and minimizing audible distortions.

FEATURES-
- 2U rackmount limiter with 48-bit processing significantly increases the average signal level of typical audio signals without introducing audible side effects
- 44.1, 48 kHz, and x2 88.2 and 96 kHz sample rates
- Linked stereo and dual mono operation
- Look ahead technology anticipates peaks before they happen, thereby minimizing the possibility of artifacts.
- **ARC (Auto Release Control)** dynamically controls release time allowing a greater amount of limiting and level maximizing without artifacts.
- **IDR (Increased Digital Resolution)** is Waves' proprietary wordlength-reduction (quantization), dither and noise shaping technology which preserves and even increases the resolution of digital signals.
- Quantization- The wordlength of digital signals can be quantized and output to 24, 22, 20, 18 or 16 bit resolution.
- Dedicated bargraph meters for input, output and attenuation with infinite peak hold and peak meter reset
- 24-bit Balanced XLR and unbalanced RCA analog I/O
- AES/EBU (XLR) and S/PDIF (coaxial) digital I/O

STUDIO MONITORS

YAMAHA

MSP10 Biamped 2-way Powered Speaker

The Yamaha MSP-10s are biamplified 2-way studio monitors totalling 180 watts per speaker. The separate amplifier for the 8" low-mid-frequency driver and the 1" tweeter allows the crossover to handle line-level signals, resulting in exceptionally smooth, natural response over the crossover range with an absolute minimum of distortion at all frequencies. The master volume control low and high EQ and low-cut filter allow you to tailor the speakers to any production environment.

FEATURES-
- 40 Hz - 40kHz frequency response (-10dB)
- 120-watt power amplifier for the low/mid driver and a 60-watt power amplifier for the tweeter
- 8" (20-cm) woofer
- 1" (2.5cm) titanium-dome tweeter utilizes a waveguide horn that achieves broad, uniform high-frequency dispersion regardless of listening position
- Balanced XLR inputs for direct compatibility with professional equipment
- Magnetically-shielded enclosures
- Green power on and red clipping LEDs
- Master volume control for each speaker
- 3-position low and high trim switches (0dB, -1.5 dB, -3.0dB @ 50Hz & +1.5dB, 0dB, -1.5dB @ 10kHz respectively) optimize system response for a wide range of acoustic environments
- A switchable low-cut filter @ 80Hz provides optimum performance when used with a subwoofer system.
- Available in Black (MSP10) and Maple-Sunburst (MSP10M) • **SW10 powered sub-woofer** also available

Hafler

M-5 Passive 2-Way Studio Monitors

The Hafler M5s are lightweight, portable studio monitors with all the qualities of the TRM6 in a more compact, non-amplified package. They are an ideal monitoring solution for broadcast and project studio environments.

FEATURES-
- 70 – 21k Hz frequency response ±3dB
- 20 - 200 watts power handling
- 5.25" polypropylene/rolled nitrile rubber surround 1" silk dome/waveguide tweeter
- 5-way gold plated binding post inputs
- Shielded woofer magnet
- User selectable front panel 3dB tweeter level control
- 4th order Linkwitz-Riley crossover at 3.2kHz. Zobels, tweeter overload protection
- Dimensions 12.25"H x 6.75"W x 7"D
- Weight 12 lbs. net

VERGENCE

M-00 Powered Mini Monitor System

The M-00s are an integrated, self-powered, 2-way acoustic suspension mini monitoring system designed for near/mid-field monitoring. They're portable enough to take anywhere, have balanced and unbalanced inputs with lots of output power (75 watts/ch) and a tough cast metal enclosure.

FEATURES-
- 4.5" treated paper woofer, 1" soft fabric dome tweeter with full magnetic shielding)
- Built-in 75 Watt per channel (continuous) amplification
- 98 - 20k Hz frequency response ±2dB @ 1M
- XLR, TRS & RCA input connectors
- Cast aluminum/zinc alloy body & Glass-filled ABS baffle.
- -10, +4dB input sensitivity & near/mid-field proximity switching
- Power On, Auto-On, Off
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- Anti-clip circuitry
- 9"h x 5.7"w x 7.3"d / 14 lbs.

STUDIO MONITORS

CROWN AUDIO

D-45 & D-75A POWER AMPS

The D-45 and D-75A are ideal power amplifiers for moderate power applications such as recording or broadcast studio near-field monitoring, video suite audio monitoring, a recording/broadcast headphone amp or a small paging system. Crown's AB+B circuitry ensures efficient use of output transistors while incorporating protection against shorted, open, mismatched or low-impedance loads.

FEATURES-
- Standard 1 RU 19" rack mount design
- Load Impedance rated for 4 to 16 ohms in Stereo and 8 to 16 ohms in Bridge-Mono.
- Signal-to-Noise: (Unweighted) 106 dB below full rated power from 20 Hz to 20 kHz.
- Power, channel 1 and 2 controls, dual/mono jumper
- Combination XLR and 1/4" Neutrik inputs per channel.
- Four-terminal barrier block outputs (two per channel) and stereo headphone jack.
- Less than 0.001% Total Harmonic Distortion (THD) from 20 Hz to 400 Hz and increasing linearly to 0.05% at 20 kHz delivering rated power into 8 ohms/channel.
- Standard three-wire grounded AC Line connector
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- D-45: 20 watts into 16 ohms, 25 watts into 8 ohms, 35 watts into 4 ohms and 70 watts into 8 ohms bridged
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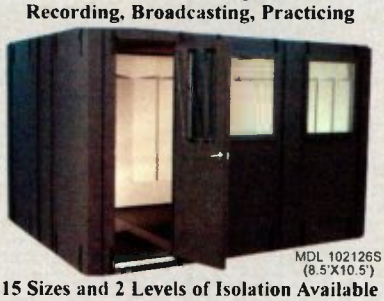

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The John Lennon

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Mail your entry to: **John Lennon Songwriting Contest**
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Each entry must consist of:

- **Completed and signed entry form (or photocopy). All signatures must be original.**
- **CD(s) or audio cassette(s) containing one song only, five (5) minutes or less in length.**
- **Lyric sheet typed or printed legibly (please include English translation if applicable). Sheets not required for instrumental compositions.**
- **Check or money order for $30.00 per song (U.S. currency only) payable to John Lennon Songwriting Contest. If paying by credit card, $30.00 per song will be charged to your account.**

Entries must be postmarked no later than September 28, 2001.

Please read all rules carefully, and then sign your name in the space provided. If entrant is under 18 years old, the signature of a parent or guardian is required.

1. Each song submitted must be contestant's original work. Songs may not exceed five (5) minutes in length. No song previously recorded and released through national distribution in any country will be eligible. Songs may have multiple co-writers, but please designate one name only on the application. **Contestant may submit as many songs in as many categories as he/she wishes, but each entry requires a separate cassette, entry form, lyric sheet, and entrance fee. One check or money order for multiple entries/categories is permitted.** (Entrance fee is non-refundable. JLSC is not responsible for late, lost, damaged, misdirected, postage due, stolen, or misappropriated entries.)
2. Prizes: Twelve (12) Grand Prize Winners will receive $2,000 in cash, $5,000 in Yamaha project studio equipment, and a $5,000 advance from EMI Music Publishing. One (1) Grand Prize Winner will receive $20,000 for the "Song of the Year" courtesy of Maxell. Thirty-six (36) Finalists will receive $1,000. Seventy-two (72) Runners-up will receive $100 from Guitar Center Stores.
3. Contest is open to amateur and professional songwriters. Employees of JLSC, their families, subsidiaries, and affiliates are not eligible.
4. Winners will be chosen by a select panel of judges comprised of noted songwriters, producers and music industry professionals. Songs will be judged based upon melody, composition and lyrics (when applicable). **The quality of performance and production will not be considered.** Prizes will be awarded jointly to all authors of any song; division of prizes is responsibility of winners. Void where prohibited. All federal, state, and local laws and regulations apply.
5. Winners will be notified by mail and must sign and return an affidavit of eligibility/recording rights/publicity release within 14 days of notification date. The affidavit will state that winner's song is original work and he/she holds all rights to song. Failure to sign and return such affidavit within 14 days or provision of false/inaccurate information therein will result in immediate disqualification and an alternate winner will be selected. Affidavits of winners under 18 years of age at time of award must be countersigned by parent or legal guardian. Affidavits subject to verification by JLSC and its agents. Entry constitutes permission to use winners names, likenesses, and voices for future advertising and publicity purposes without additional compensation.
6. Winners will be determined by January 15, 2002, after which each entrant will receive a list of winners in the mail. CDs, Cassettes and lyrics will not be returned.

I have read and understand the rules of the John Lennon Songwriting Contest and I accept the terms and conditions of participation. (If entrant is under 18 years old, the signature of a parent or guardian is required.)

SIGNATURE DATE

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ROGER NICHOLS

▶ continued from page 158

console for access to the studio's GML and Millennia mic preamps.

All of the Pro Tools parts were assembled, and cables ran back and forth across the control room floor. The ProControl has DB-25 connectors on the rear panel for analog audio I/O. Snakes were used to get the audio in from the AD8000 playback and cue mix feeds. The TC 6000 was placed so that the digital interface connected to the 888/24. By the end of the first day, everything was working — recording, playing back — what more could you ask for?

Day two was for Don to get his Logic Audio software with EVP88 virtual synth and EXS24 virtual sampler loaded on the studio computer. The studio computer was a Mac 9600/300, which should have been fine for the task. After lengthy installation of software with copy protection authorizations and dongles, we discovered that the computer didn't have enough memory to run the required plug-ins. We didn't want to buy lots of memory for a computer with a limited use expectancy, but we needed the audio files out of the virtual synths.

We were originally planning to lock the MIDI computer to the Pro Tools computer so they could run in parallel, but it wasn't going to happen. We then tried to load the software on a laptop, but that didn't work out either. We ended up with all of the MIDI software on the same G4 as the Pro Tools system. We ran Logic Audio, printed the audio from the virtual synths, and then imported the audio files to Pro Tools. This process took a week to figure out while we were cutting tracks. Oh well.

RECORDING

The studio has Mytek monitor systems so that each musician can have his own mix. I just had to patch an analog output from the bass, guitar, and keyboard directly to knobs on the Mytek, and then send a stereo mix of the drums. Headphone mix — done.

We recorded directly into Pro Tools at 48 kHz/24 bits. I do this every day, but there's an extra "pucker factor" when you've flown Sonny Emory, Abe Laboriel, and John McFee to Maui for a week to cut tracks. They're too booked up to stay over and there's no place to get parts if something crashes. FedEx takes two days to Maui.

I was recording everything flat into Pro Tools and setting EQ for monitoring (and later mixing). After the first song was finished, I saved a version of the song with no audio — just the empty tracks with EQ, cue mixes, and aux returns for the TC 6000. For the balance of the fourteen songs, I just copied the session document, renamed it for the new song, and made sure the disk allocation was set to the correct folder. Half of my work was done.

We set a record for all of us: Fourteen songs — one take each! What the hell is that? I wanted to fill up the hard disks, not take them back empty. They listened to the demo, followed along on the chart, went out to the studio room, recorded one take, came back in, listened, and that was that. On three songs we had to punch in a bass note or a guitar chord, but that was it. Is there a Grammy for recording a whole album in one take?

LAPTOP TIME

Next we needed to do the remote recording of the piano. Armed with a G4/500 laptop, microphones, and slave mixes of the six songs we needed, we traveled to an amazing house on the slopes of Maui with a central room dedicated to a piano and an Allen digital four-manual pipe organ. The entire front of the house was glass from floor to 18-foot ceiling. The piano sounded great, but the view was fantastic. Three whales beached while we were doing the overdubs.

Logic Audio 4.7 on the laptop with a Digigram VXPocket captured the recordings. The piano was miked using Shure KSM32's through a True Audio Precision 8 mic preamp. Headphones were fed from a Rane headphone amp. The VXPocket was set for loop-through monitoring to avoid latency problems. Everything worked fine. We got the six songs done, went back to the studio, imported the audio into the original Pro Tools session, and went back to work.

WRAP UP

That's where I am right now. Sorting out piano tracks and deciding what to use and what not to use. We still have vocals and some keyboard overdubs to do. Mixing will be done in Pro Tools using plug-ins and the ProControl for fader moves. I hate riding vocals with a mouse.

By the time you read this, I'll be done mixing and it will be time for a sunny vacation in Miami. Somebody's gotta do it. ■

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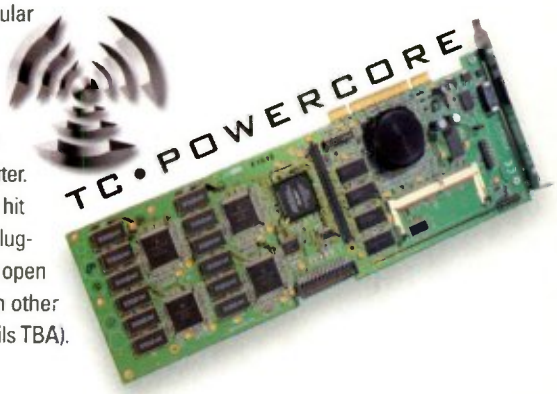

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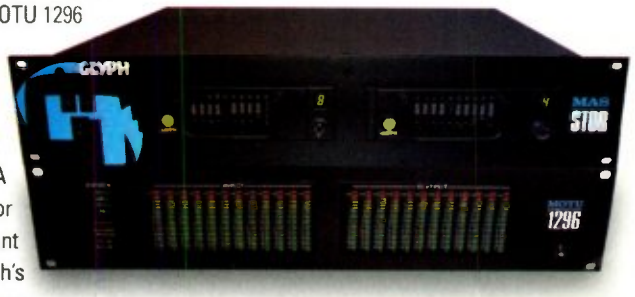

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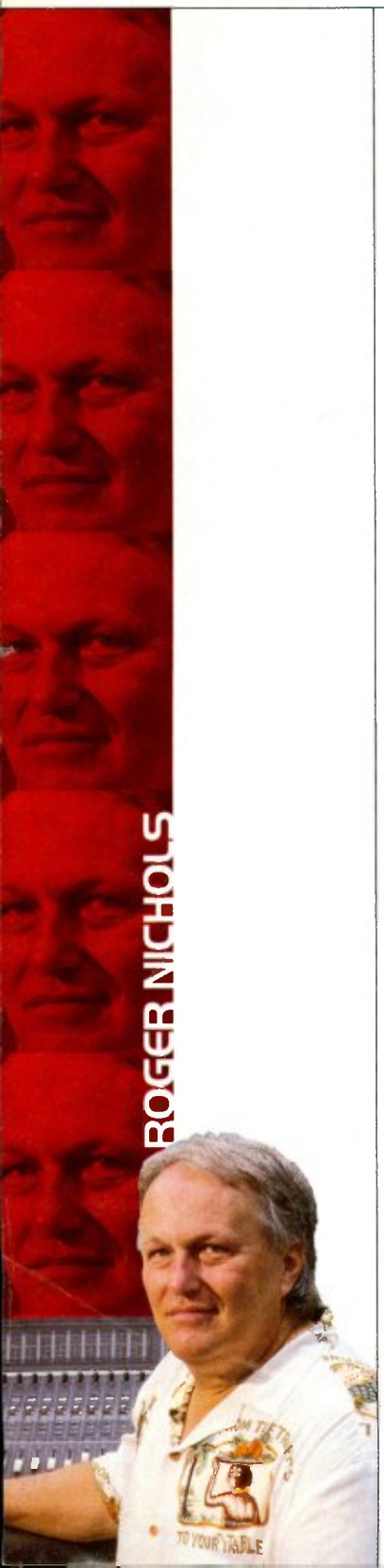

As I pen this column, I'm 1,700 feet up the side of Haleakala on the island of Maui, looking out the window of the studio where the cows and turkeys are helping me enjoy the view of Molokini, Lanai, and Kahoolawe.

The studio we're using has a pair of Sony digital multitracks, a nice recording room, and great microphones, but the console is an old Soundtracs IL4832 analog. What's a digital kind of guy to do? If the island won't come to my Pro Tools, then I guess Pro Tools has to go to the island. It worked for Mohamed and the mountain!

The task was to bring everything needed to record, overdub, and mix in digital. Pro Tools 5.1 was the choice for this task — mostly. The producer from Japan bought a Pro Tools 24IMix Plus system with two additional Mix Farms, an expansion chassis, a G4 Mac with ATTO SCSI accelerator card and Cinema Display, two Apogee AD8000 interfaces, two Digidesign 34-gig Silent Drives, TC Works plug-in bundle, Waves Gold bundle, Autotune, and a plethora of AcroTec 99.9999% pure copper analog cables.

I was making a list of equipment I needed to bring to round out the recording hardware. Just when I thought I could fit everything I needed into one bag, I got a call from the producer. There's no acoustic piano at the studio, and nobody wanted to haul one halfway around the island for a week's use. Rats. I suggested that we find a good piano on the island in someone's house or restaurant and remote record it. The studio manager found a nine-foot Steinway in a home owned by a classical organist. He said that, if we paid for the tuning, we could record the piano.

I started packing the necessary equipment for the trip. My Digidesign USD, 888/24 interface, ProControl, TC Electronic 6000 reverb, Precision Audio True 8 mic preamp, Valley Audio Dynamax 730 limiter, two Maxtor 80-gig FireWire drives for file backup, four Shure KSM32 and two KSM44 mics, and a pair of Beyerdynamic digital microphones. I thought about the remote recording, and decided I'd use my Powerbook G4/500 laptop fitted with a Digigram VXPocket card and Logic Audio so that the piano could be easily dropped back into the Pro Tools recordings done at the studio. I was ready.

Don "Cruisin' For A Bruisin'" Grusin was "anchor man" for the sessions. He'd done the preproduction work at his studio using Logic Audio virtual soft-synths. He was going to bring all the files and copy protection dongles, and we were going to install everything on the Mac at the studio. I love technology.

> "WE RECORDED DIRECTLY INTO PRO TOOLS AT 48 KHZ/24 BITS. I DO THIS EVERY DAY, BUT THERE'S AN EXTRA "PUCKER FACTOR" WHEN YOU'VE FLOWN SONNY EMORY, ABE LABORIEL, AND JOHN MCFEE TO MAUI FOR A WEEK TO CUT TRACKS."

THE FIRST DAYS

I scheduled two days in the studio prior to the first tracking day to get everything working correctly. The first day was for me and the Pro Tools recording setup. We turned off the Soundtracs console and put a foam pad over the knobs so we could place the ProControl on the console. The Meyer HD-1 speakers would stay where they were on the Soundtracs meter bridge. The Apple Cinema Display was positioned between the speakers. The G4 and the hard disks were placed on the floor behind the console to minimize the noise pollution. All connections for monitoring and talkback were made through the ProControl, directly to the powered speakers. The AD8000's were placed to the side of the

▶ continued on page 154

THE EVOLUTION OF SOUND CONTINUES

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