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INTERVIEW HARTLEY PEAVEY

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In recent years there has been a trend toward extending low frequency response in monitoring applications. The Tannoy PS115 Active Subwoofer has been carefully engineered to provide the required extension without sacrificing quality. In fact, it improves it.

The PS115 relies on a 15" long throw transducer carefully designed to maximize the low frequency extension to -3dB at 33Hz, while maintaining the ability to deliver high SPL (114dB peak) and the dynamics required for today's complex music mixes. Employing the very latest in electronic filter design, the large 15" transducer can be integrated into your favorite near- or mid-field monitor from 50Hz to 130Hz depending on your system/rooms particular requirements.

The PS115 takes advantage of a state-of-the-art high pass network that bandpasses your near-field monitor at 80Hz substantially reducing cone excursion on the smaller satellite bass units. This results in a cleaner, tighter mid-band due to the decrease in group delay. In fact, the cone travel on the average near-field monitor is reduced by two to three hundred percent.

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PROFESSIONAL RECORDING · SOUND AND MUSIC PRODUCTION

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PRODUCTS

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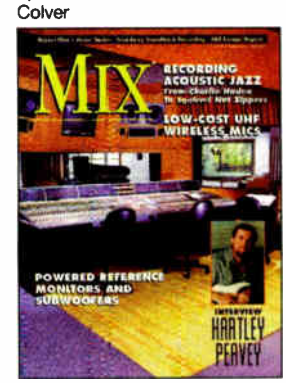
LIVE SOUND

DEPARTMENTS

On the Cover: The Village Recorder, founded in 1968, is located in a 1920s Masonic Temple building in west Los Angeles. Consoles include a Neve VRL72 and VRLSP72 (pictured, in Studio D) and a vintage Neve 8048 with Flying Faders. The facility, which was designed by Vincent Van Haaff of Waterland Design, also offers a huge array of vintage and modern mics and outboard gear. Recent clients include Tom Petty & The Heartbreakers, the Rolling Stones and Smashing Pumpkins. Film scores include *Ace Ventura*, *The Shawshank Redemption* and *Speed 2*. **Photo:** Edward C. Colver

L.A.'S FINEST

A special *Mix* advertising supplement featuring the hottest studios in Los Angeles begins after page 128.



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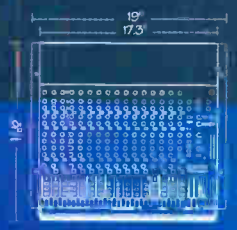
Four submix buses, swept mid EQ, AFL/PFL, new materials, new technologies and the so

The original CR-1604 defined the modern compact mixer. Now we've "raised the standard" by adding over 20 new features like true 4-bus design with assign switches on every channel, 16 high-headroom/low noise mic preamps, separate stereo Control Room/Phones bus, effects return to monitors — for just $100 more* than the original CR-1604! No matter where you mix or what you mix, you'll find a lot to like on the new CR1604-VLZ. Call for a free 40-page brochure and applications guide today.



NEW TRIM *control (on the channel strip) with 60dB total mic gain & –10dB "virtual pad" for line inputs.*

6 AUX SENDS *per ch. Aux 1 & 2 switchable pre/post. Aux 3 &4 (post-fader) become 5 & 6 via Shift switch.*

HI EQ. *±15dB shelving at 12kHz.*

NEW SWEEPABLE MIDRANGE. *Wide, musical peaking EQ with 100Hz to 8kHz range. ±15dB range.*

LO EQ. *±15dB shelving at 80Hz.*

NEW LOW CUT FILTER *is a must for live sound and acoustic (microphone) recording. Sharp, 18dB/octave @ 75Hz high-pass filter lets you add Low shelving EQ to vocals without boosting undesirable mic thumps, stage rumble, wind noise, P-pops, etc.*

PAN *control with constant loudness to maintain stereo perspective.*

MUTE *switch.*

NEW MUTE & OVERLOAD *LED.*

NEW –20dB SIGNAL PRESENT & SOLO *LED.*

SOLO. *In-place AFL or PFL (pre fade listen).*

NEW BUS ASSIGN *for Subs 1-2, 3-4 & Main L/R.*

NEW 60mm FADER *with true log taper, special lip seal & long-life wiper material.*

NEW *Aux Return 3* **ASSIGN SWITCHES** *to Main Mix, Subs 1 & 2 or Subs 3 & 4.*

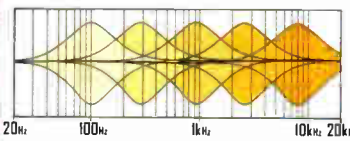
NEW *Aux Return 4* **ASSIGN** *to Control Rm/Phones.*

NEW PHANTOM POWER *LED.*

NEW CONTROL ROOM/PHONES *level control.*

NEW TAPE INPUT LEVEL *control and* **TAPE TO MAIN MIX** *switch.*

NEW CONTROL ROOM/PHONES SOURCE MATRIX. *Just like our 8•Bus monitoring system, this creative feature lets you route any combination of Tape, Subs 1 & 2, Subs 3 & 4 or Main Mix to Control Room/Phones bus. Lets you create custom headphone mixes (press MAIN MIX and let performers in the studio hear what you're hearing in the control room), run simultaneous broadcast or live 2-track recording mixes, monitor 2-track tape deck output (if you're doing commercial production, press TAPE and share it with VO talent in the studio), route a cue/click track to phones or create a second stereo main output with its own level control.*



MORE THAN JUST SWEPT MIDRANGE. *Most mixers (except very expensive ones) have narrow EQ bandwidths — OK for drastic corrections but not very useful for gentle tonal changes. The CR1604-VLZ has wide, midrange EQ bandwidth that is far more musical-sounding and can be used more generously than narrow mid EQ.*

5-WAY PHYSICAL CONFIGURATION *via our famous rotating input/output "pod." Out of the box the CR1604-VLZ comes in with jacks to back. Use on a tabletop ❶ or rack-mount it with the free rack rails included ❷. In minutes, with just a screwdriver, you can rotate the pod for an ultra-compact 8-rack space configuration ❸. Optional RotoPod-VLZ bracket places the input/output jacks on same plane as the controls (rackmount ❹ or tabletop ❺).*

Stereo **AUX RETURNS 1 & 2** *with 20dB gain above Unity for boosting weak effects.*

NEW AUX SEND 1 & 2 MASTERS.

NEW AUX SEND 1 & 2 SOLO *switches with LEDs.*

BNC *lamp socket.*

NEW EFFECTS TO MONITORS *control: fold Aux Return 1 & 2 back into Aux Sends 1 & 2 so that on-stage performers can hear outboard effects.*

Stereo **AUX RETURNS 3 & 4** *with 20dB gain above Unity for boosting weak effects.*

Global **AUX RETURN SOLO** *with LED.*

LED **METERS** *with –30 to +28 range.*

NEW LEVEL SET *LED. In conjunction with individual channel Solo lets you quickly and accurately set input levels to Unity Gain minimizing noise and maximizing headroom.*

Global **SOLO** *level control.*

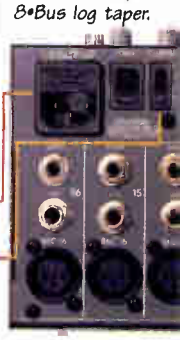
RUDE SOLO *light.*

NEW *Global* **AFL/PFL SOLO** *switch.*

HEADPHONE *output.*

NEW BUS ASSIGN *to Left and/or Right Main Mix.*

NEW *60mm* **SUB-MASTER & MAIN L/R** *faders with accurate, 8•Bus log taper.*



BUILT-IN *power supply.*

PHANTOM POWER *switch.*

***THE BIG ASTERISK:** Suggested U.S. retail for the CR1604-VLZ is $1199. This is actually LESS than the combined price of the old CR-1604 and XLR10 mic preamp expander (needed to get a full 16 mic preamps). Priced higher in Canada.*

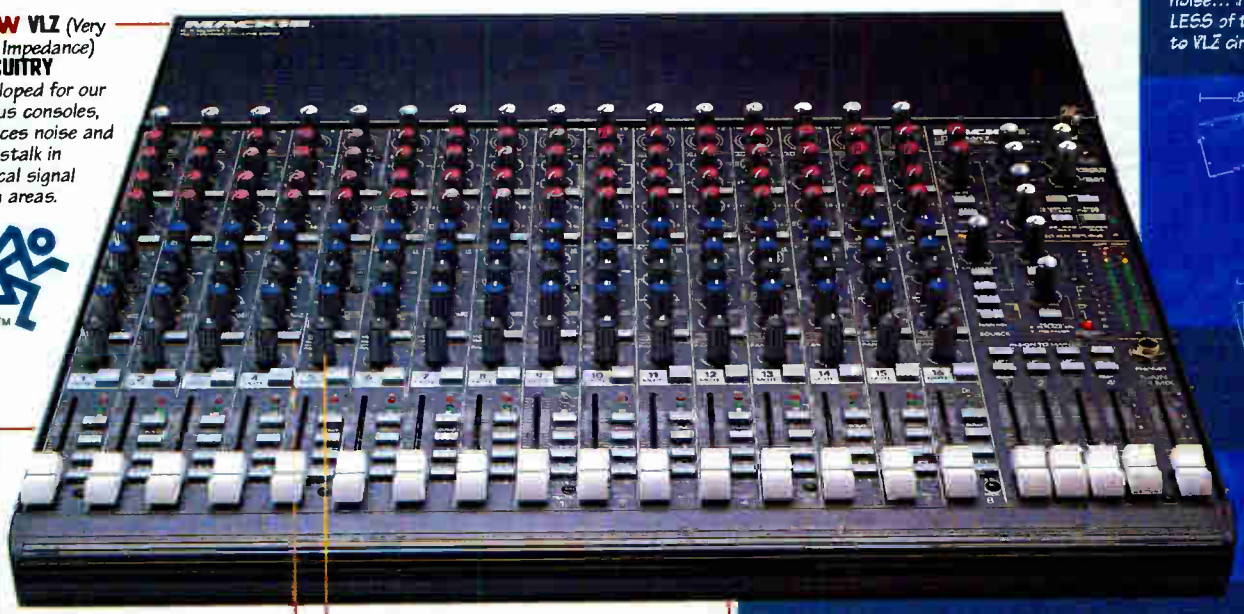
nps • -20dB signal present LEDs • Control Room/Phones section w/switching matrix

MORE EQ, MORE FEATURES, MORE EVERYTHING.** 4-BUS CR1604-VLZ MIC/LINE MIXER. JUST $1199.*

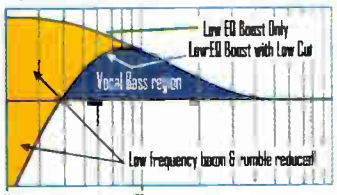
of our 8•Bus...we packed the new CR1604-VLZ with a 5-year "wish list" of the most-requested mixer features.

** Everything except noise... There's even LESS of that thanks to VLZ circuitry.

NEW VLZ (Very Low Impedance) **CIRCUITRY** developed for our 8•Bus consoles, reduces noise and crosstalk in critical signal path areas.



SOLID STEEL main chassis.



NEW MONO OUTPUT (bal./unbal.) has separate volume control.

NEW RCA TAPE inputs & outputs (unbalanced).

NEW Separate **CONTROL ROOM OUTPUT** (bal./unbal.) so you don't tie up your headphone output with an amp.

NEW INSERTS on every channel.

SUBMASTER OUTPUTS (bal./unbal.).

SEALED rotary controls resist dirt, smoke and diet cola.

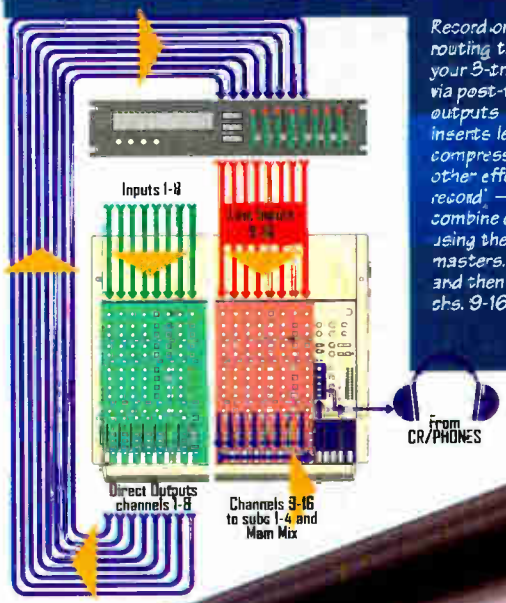
Maximum **RFI INTERFERENCE PROTECTION** via metal jacks, blocking capacitors, etc.

NEW LOW CUT FILTERS on all channels. Low Shelving EQ can be very useful on vocals. But adding Low EQ also boosts stage rumble, microphone thumps and wind noise that aren't good for your PA system. Our sharp 18dB/octave filter cuts out the bad stuff below 75Hz and leaves the good stuff (unlike the shallow 6dB/octave or 12dB/octave "low cut" filters on some mixers that also slice off audible low bass & don't fully cut out subsonic stuff).

NEW 16 STUDIO-GRADE MIC PREAMPS with –129.5dBm E.I.N. — the same ones as on our acclaimed 8•Bus consoles that are regularly used to record platinum albums.

DIRECT OUTS (bal./unbal.) channels 1-8.

The perfect mixer for use with 8-track digital recorders.



Record on chs. 1-8, routing tracks to your 8-track recorder via post-fader direct outputs (separate inserts let you add compression or other effects as you record) — and/or combine chs. to tape using the 4 sub-masters. Monitor and then mixdown via chs. 9-16.

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FROM THE EDITOR

AN AMERICAN ORIGINAL

Hartley Peavey owns a couple dozen factories with 2,400 employees creating 3,000 products, yet he hasn't forgotten his roots. Three weeks ago, I saw Hartley talking about equalizer design with a sound contractor who walked into the company's demo room at the NSCA convention. There aren't a lot of CEOs of major companies who do that, but Hartley isn't exactly your typical CEO.

In 1965, Hartley started building guitar amps in the attic above his father's music store in Meridian, Miss. Today, Hartley remains one of the few company founders in the audio business who still manages and controls a business after three decades. There's no venture capital, no corporate buyouts, no shareholders—just Hartley and his wife, Melia, who, as company president, oversees marketing functions.

Hartley has a reputation for speaking his mind and then backing it up with action. Some years ago, he decided that mail-order sales were not in the best interests of his customers or dealers, and today you won't find Peavey products in any catalogs. Another of Hartley's passions is education, and he has invested several million dollars in a state-of-the-art learning center at the Peavey headquarters, complete with multimedia classrooms, MIDI labs, a large lecture hall/performance center and a working 24-track recording studio. Throughout the year, the center bustles with dealers, reps and retailers worldwide. Unfortunately, given the high employee turnover rate in audio/music dealerships, training store personnel in audio basics may seem an exercise in futility. Yet, Hartley believes that any step toward creating informed retailers improves the industry as a whole.

Peavey manufacturing is a shirtsleeve operation—the only "suits" visible are probably visiting parts vendors—and everybody addresses Hartley by his first name. Everything is done in-house, including painting, metal work, cabinetry, insertion and the fabrication of PCBs and diaphragm/voice coils. Attention is paid to the smallest details—for example, on arrival, a thick steel mounting plate is welded to every power and output transformer, so these heavy components don't rely on flimsy sheetmetal "ears" that can tear loose in transit. It's a simple concept, and not too surprising from a guy who turned an attic guitar shop into a multinational company that makes musical instruments (guitars, amps, drums, keys), installed and concert sound products, cinema reinforcement, microphones, recording consoles, the MediaMatrix computer-based audio design/control system and much more.

The Peavey story continues in this month's "Insights" column, but there's plenty more in the issue, including in-depth spotlights on the recordings of five recent jazz albums, Chris Michie's examination of the state of the art in powered reference monitors and complete coverage of the European AES show in Munich. Also, our special focus on the hot Los Angeles recording scene includes a tour of composer Brad Fiedel's private studio, an interview with Southern California producer Michael Lloyd, KCRW's "Rare on Air" series, a "club crawl" along the Sunset Strip, a Session Spotlight at NRG Recording and a Classic Tracks retrospective on X, one of L.A.'s most memorable acts.

Don't miss it,

George Petersen

BPA INTERNATIONAL SPARS ABP American Business Press

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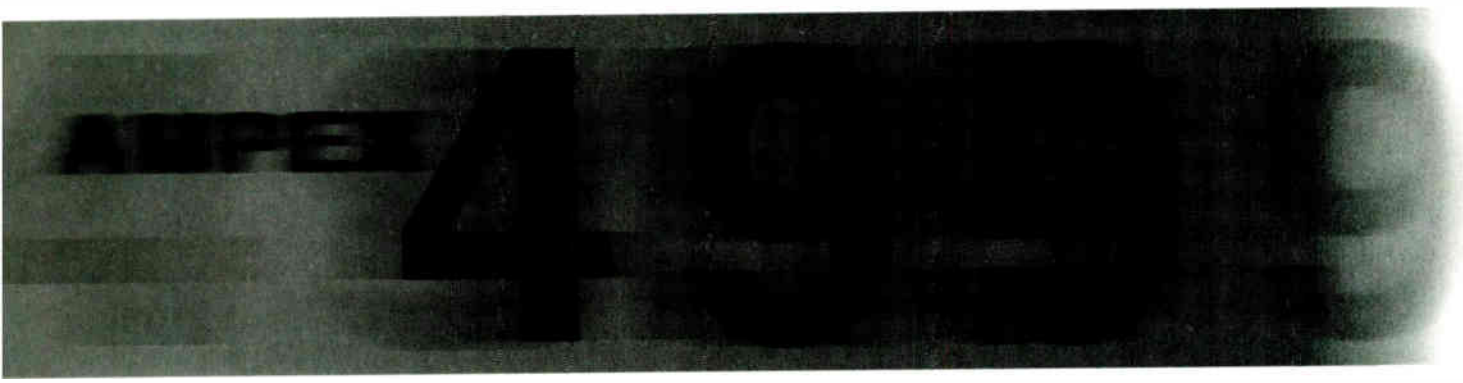

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CURRENT

GABE M. WIENER, 1970-1997

The pro audio and classical music worlds were stunned to learn of the sudden passing of Gabe M. Wiener, founder and chief engineer of Quintessential Sound, on April 9, 1997. Gabe was an audiophile engineer whose pursuit of pure audio recording, restoration, mastering and reproduction was legendary among audio engineers, manufacturers, designers and enthusiasts. He was also a passionate classical record producer, recording/mastering engineer and music researcher who founded and directed Pro Gloria Musicae Recordings, an audiophile early music label. Most of all, however, Gabe was a mentor, friend, teacher and colleague to the countless people with whom he generously shared his passion for life and his insatiable quest for knowledge.

At eight years old, he received his ham radio operator's license, becoming one of the youngest people ever to do so. After receiving a bachelor's degree in music from Columbia University and a diploma from the Institute for Audio Research, Gabe opened Quintessential Sound Inc., a New York-based mastering, audio restoration and location-recording firm. Based on Wiener's deep interest in restoring acetates, LPs, 45s and analog tapes, QSI soon became highly regarded for its audio restoration services. (Wiener detailed his expertise on restoring transcription discs in the December 1995 issue of *Mix*.)

In 1995, he launched PGM to produce audiophile recordings of early music written by significant-but-overlooked composers. Thanks to his efforts, the almost-forgotten works of Dieterich Buxtehude, Salamone Rossi and many others were reintroduced—and in some cases introduced. Gabe's dedication to creating, as he so eloquently put it, "an incomparable transcription of a musical event" manifested itself in his use of minimalist-miking techniques and 24-bit recording and mastering technology. For Gabe, the maxim "bad audio in/bad audio out" was a daily mantra.

I was privileged to have worked with Gabe at QSI and PGM for two-and-a-half years. He taught my co-workers and me so much about not only sound engineering, the audio business and the music industry, but also the Internet, computers, literature, J.S. Bach, the great philosophers—the list goes on and on. He loved discussing the history and the future of pro audio and classical music with everyone, whether it was in person or through his spirited Internet posts (to rec.audio.pro, rec.audio.high-end and pro-audio); his funny and candid AES Show Post-Mortems; his detailed home page (www.pgm.com); or his devoted involvement with the AES (where he served as chairman and vice-chairman of the New York section).

Gabe left us a rich legacy in both his recordings and his commitment to excellence. As Glenn Zelniker of Z-Systems Audio wrote in an Internet post shortly after Gabe's death: "He forced us to try to be better at what we did. I know that I always have the question 'Will Gabe think this sounds good?' in my mind whenever I'm designing something. I'll continue to ask myself this question forever." So will the members of QSI and PGM as they carry on Gabe's legacy in future projects and releases. We miss you, Gabe, and thank you for making our world a better place. — *Evan Ambinder*

NARAS ANNOUNCES 1996-97 GRANT AWARDS

Michael Greene, president/CEO of the National Academy of Recording Arts and Sciences Inc. in Santa Monica, Calif., announced the recipients of the 1997 NARAS Grant Awards: the Center to Preserve Music Culture (San Francisco); CultureWorks Ltd. (Philadelphia); Michigan State University; the Smithsonian Institution's National Museum of American History (Washington, D.C.); San Jose State University Foundation; Texas Woman's University; University of California, Irvine, Center for the Neurobiology of Learning and Memory; University of Cincinnati; and the University of

—CONTINUED ON PAGE 12

TEC AWARDS TO HONOR AL SCHMITT, STEVIE WONDER

Al Schmitt will be inducted into the TEC Awards Hall of Fame, and Stevie Wonder will receive the Les Paul Award at the 1997 Technical Excellence and Creativity Awards, to be held September 27, 1997, at the Marriott Marquis in New York City.

The TEC Awards Hall of Fame was created to recognize those individuals, living or deceased, whose careers have best exemplified the spirit of creative and technical excellence in professional audio. This year, the TEC Awards will honor Al Schmitt. With an unparalleled seven Grammy Awards for engineering, Schmitt epitomizes great recording through decades of technological change. From his first Grammy in 1962 for Henry Mancini's *Baby Elephant Walk* through George Benson's *Breezin'*, *Aja* and *FM* with Steely Dan, *Toto IV*, Natalie Cole's *Unforgettable* and last year's *Q's Jook Joint* (Quincy Jones), Schmitt lives the art of engineering.

The Les Paul Award was created in 1991 to honor those individuals or institutions that have set the highest standards in the creative application of technology. This year the board of directors for the Mix Foundation for Excellence in Audio and the editors of *Mix* chose to recognize Stevie Wonder. Since his debut in 1963 as "Little Stevie Wonder: The 12-Year-Old Genius," the world of music has been forever transformed. Wonder, a visionary of peace and harmony, has elevated pop, explored soul, reinvented R&B, mixed in jazz, reggae and blues, played it with his own synthesizing sense, and along the way pioneered the concept of the one-man artist's studio.

For a list of the 1997 TEC Awards nominees, see page 129. For tickets or more information, contact Karen Dunn, executive director, at 510/939-6149. ■

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- Master status switching for tracking, mixing and broadcast
- Colour TFT screen in meter bridge provides sight-level automation data and Recall displays
- Encore automation/mix data interchange with AMS Neve digital consoles

VXS Multi-Format consoles additionally provide:

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- Up to 8 discrete outputs/4 stereo pairs
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INDUSTRY NOTES

Alan Zak was promoted to the post of president at **Alesis Corp.** in Los Angeles, CA...News from **Harman** (Sandy, UT): **John Batliner** was named vice president of international sales and marketing at **dbx**, **Randy Thorderson** is **DigiTech**'s newest director of marketing and product management, and **DOD** named **Bill Robinson** as vice president of sales and marketing and **Brian Bristo** as inside sales representative. Also, Rick Sawyer was named sales manager, North America and **Luis C. Endara Jr.** named sales manager, Latin America at **Orban** in San Leandro, CA...**Yoon-Jong Lee** was appointed managing director, finance and controlling, of **EMTC Magnetics** (formerly BASF Magnetics) in Ludwigshafen, Germany...Old Lyme, CT-based **Sennheiser Electronic Corp.** named **Scott Schumer** as vice president, eastern region...Jazz producer **Orrin Keepnews** received a NARAS Governors Award for Outstanding Achievement from the San Francisco chapter at the annual Grammy Nominees Celebration this past February...**Fairlight USA** (Culver City, CA) brought onboard **Timothy Cuthbertson** as vice president of sales, western region...Paul W. **Melnychuck** was named senior vice president and general manager of **Kodak Recording Products**, a newly formed subsidiary of FPC Inc., a branch of the Kodak Professional Motion Imaging business unit (Hollywood). In other Kodak Recording Products news, **Terence O'Kelly** was appointed director of new business development...**John Casey** assumed the newly created position of vice president of marketing and sales at **Telos Systems/Cutting Edge**, headquartered in Cleveland... **Equi=Tech** (Selma, OR) named **Ron Papia** director of sales and marketing...The **Walters-Storyk Design Group**, based in Highland, NY, announced a strategic alliance with the **Philips Janson Group** (New York City)...**Greg Hansen** was appointed as vice president of sales and marketing and **Ken Bernd** as inside sales manager at **Gepco International** in Chicago...**Young Minds Inc.** (Redlands, CA) appointed **Matthew Hornbeck** to the post of president...**E-mu Systems Inc.** (U.S. offices in Scotts Valley, CA) announced a mutual collaboration agreement with **Buchla Associates**, of Berkeley, CA...Foster City, CA-based **Otari Corp.** announced the appointment of **Kris Jackson** as training manager, **Vicky Neal** as marketing communications coordinator and **Jane Hutter** as sales administrative assistant...**Chris Colaço** is the newest national service manager at **Carver Professional**, based in Portland, OR...**Eric L. Broadhurst, P.E.** was promoted to principal consultant at **Charles M. Salter Associates** in San Francisco...Grass Valley, CA-based **Graham-Patten** named rep firm **Excotec** to handle sales and support in Mexico...**Michelle Mehterian** joined **Pinnacle Micro** (Irvine, CA) as marketing communications manager... **Audio Broadcast Group Inc.**, headquartered in **Grand Rapids, MI**, brought onboard **Craig Harfst** as systems integrator for multimedia communications products, distance learning and audio/video conferencing...**Western Audio Sales** was named 1996 Rep Firm of the Year by **QSC Audio Products Inc.** (Costa Mesa, CA)...Cerritos, CA-based **Kurzweil Professional Products** named **Jeff Dunmire** as Salesman of the Year...**XTA Electronics**' (Farmingdale, NY) DP Series was recently awarded *TCI* magazine's Sound Product of the Year for 1997...**Mitsui Toatsu Chemicals Inc.** (U.S. offices in Purchase, NY) announced plans to construct a CD-R production facility in Ensisheim, France... **Peavey Electronics Corp.** (Meridian, MS) announced that its European plant and headquarters, located in Corby, UK, was awarded Corby's Borough's Industry Cup, for contribution to the community. ■

—FROM PAGE 10, CURRENT

North Texas, Center for Musicians' Education, Health and Performance Studies.

The NARAS Grant Program, established in 1987, awards grants to nonprofit organizations and individuals to support efforts that advance music research, archiving and preservation, professional education, music education and other projects related to the recording arts.

MIX WINS MAGGIE

Mix magazine was the proud recipient of a 1996 Maggie Award, at a recent awards ceremony sponsored by the Western Publications Association. The award, honoring the November 1996 issue, was in the Communication, Advertising & Entertainment (Trade) category.

The Maggie Awards recognize top publications published or distributed west of the Mississippi. Entrants are judged on an "Editorial Profile" outlining the editorial goals of the publication and a brief reader profile. Judges evaluate how well editorial content meets stated goals, how editorial elements work together to meet readers' needs, and writing quality. Design judges then evaluate how well art supports these stated goals in creativity, design consistency, typography and layout execution.

UPCOMING TRADE SHOWS

RepliTECH International takes place this month, in San Jose, Calif. The show runs from June 3-5 and features the latest in duplication and replication media and technology. For more information, call 914/328-9157 or visit www.kipnet.com/rep.

Pro Audio and Light Asia will happen next month, from July 3-5 in Singapore; this year's show is expected to draw more visitors than ever. For details, call 011/65/227-0688.

The Beverly Hilton Hotel in Beverly Hills, Calif., hosts the 10th Annual forum and expo of the International Teleproduction Society, taking place on July 10-13. For more information, phone 703/641-8770.

The NAMM Summer Session, Music City USA, hits the Nashville Convention Center and Nashville Arena July 11-13. For registration information, contact NAMM at 619/438-8001, or visit www.namm.com. ■

Loved by The King, The Chairman, The Material Girl, Some Hot Tuna & Everyone aboard The Airplane.

Don't tell Al Schmitt that names aren't important in recording. He has recorded, mixed, and produced some of the greatest names in history—everyone from Elvis to Frank Sinatra, Madonna to Steely Dan, Barbara Streisand to Toto, and Natalie Cole to the Jefferson Airplane. His Neumann mics (which he has been using and collecting since the mid-1950's) have even helped him win six Grammy Awards for Best Engineer. "I believe they are the best microphones in the industry," he says.

And when you also believe, as Al does, that great sound comes from good microphone technique (and not from constant EQ adjustments) you want to use the very best mics you can get. The natural choice for Al is Neumann. And while he has great affection for all of his Neumanns, he has grown particularly fond of his new M 149 Tube. "Like the original M 49, the M 149 Tube never lets me down," he says. "It's an extraordinary microphone—clean and crisp."

Being the award-winning professional and sound perfectionist that he is, Al has chosen to record the voices and instruments of so many of our favorite artists—Tony Bennett, Jackson Browne, Willie Nelson, Quincy Jones, Diana Krall, Dr. John, Michael Bolton, and many, many others—through his favorite mics.

After all, nothing else sounds like a Neumann.

NeumannUSA

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Canada: Tel: 514-426-3013 • FAX: 514-426-3953
Mexico: Tel & FAX: 52-5-639-0956
World Wide Web: http://www.neumannusa.com

CIRCLE AO NUMBER ON PRODUCT INFO CARD

Q: What's the difference between a PCI soundcard and the

Layla by ECHO™

Professional Digital Multitrack Recording System?

A: Oh, about a gazillion things.

RECORD IT
Hook up directly to each of your console's eight buses. Transfer tracks from a tape-based digital recorder for editing. Record your band live without premixing. Layla gives you eight independent balanced analog inputs—all simultaneously accessible, all outfitted with exceptionally low-noise 20-bit A/D converters. (We even put two extra inputs on the front panel to help you capture those moments of inspiration without needing to fire up your whole rig.) And in case you were wondering: Input levels are adjustable in software from –10dBV to +4dBu.

These days it seems like everyone and their brother is making PCI audio interface cards for the PC and Mac. To say the marketplace is a bit confused is like saying Times Square on New Year's Eve is kinda crowded. So how do you separate the good from the bad and the ugly? Easy. Look hard at the features, determine what's important to you, then balance that against what's going on in your pocketbook.

We'll help. Study these pages carefully. We think you'll soon see that Layla delivers the features and performance you want—at a price that's remarkably easy on your budget.

Okay. Got the picture? Obviously Layla isn't just another card, but a complete system. A system designed to help you make great-sounding music. Designed to grow as your needs grow. Designed to change the way you think about hard disk recording.

Designed to knock your socks off.

Different. Powerful. Multitrack. Digital. 24-bit. Rack-mount. Sync. DSP. MIDI. Timecode. Compatible. Expandable. Lovable (truly). $999. (Wow.)

Brought to you by Event Electronics. www.event1.com info@event1.com

PLAY IT Forget about having to premix output tracks—forever. Layla features ten independent balanced analog outputs, each one boasting a superior quality DAC, for true 20-bit audio performance. And our exclusive OmniBus™ audio assignment architecture lets you easily configure the outputs as aux sends, monitor mixes, discrete track outs—you decide. Plus you can play back on all ten output channels while you're recording on all eight input channels . . . that's not just full duplex—that's octadecaplex!

EXPAND IT Now for the really big news: You can synchronize multiple Layla systems—expansion is as simple as plugging in another card and connecting the word clock output of the master unit into the word clock input of the slave. (Daisy-chain as many Layla units as you have PCI slots in your computer.) When you build a larger system you not only get more hardware ins and outs (now does 24 inputs x 30 outputs grab ya?), you get more (lots more!) DSP horsepower.

MIDI IT(!) All right. We admit that MIDI in/out/thru probably isn't the most earth-shattering feature you've ever seen (even if it is opto-isolated). But we know you'll appreciate the convenience of being able to create a simple, yet powerful audio/MIDI multitrack recording system without having to hook up a ton of additional gear (or worrying about your MIDI interface card conflicting with the IRQ on your digital I/O card, which conflicts with your SCSI card, which conflicts—you get the picture). Did we mention that Layla is a true Plug and Play™ system? That's right, no jumpers to set, no IRQs to configure (in fact, only one IRQ is used for both audio and MIDI functions and no DMA channels at all are used). Setup is as simple as plugging in the card and connecting the included multipin cable from the card to the audio I/O unit.

SYNC IT Layla offers synchronization capabilities that make it perfectly at home in a variety of professional environments. Synchronize to picture via SMPTE/MTC. Lock to external word clock. Generate sample-accurate sync from the master clock out. (Our word clock provides continuous single-sample resolution from 5kHz to 50kHz.)

DIG IT Create a 24-bit stereo master mix to send to the digital output. (Yes, Virginia, there's stereo 24-bit digital input as well.) Or maybe an all-digital effects loop is more to your liking? Whatever the application, your precious audio tracks are handled with 24-bit precision throughout Layla's internal audio path.

EDIT IT Work with total freedom. Edit your music with the precision and flexibility that only random-access disk-based recording can provide. Layla is compatible with any audio recording/editing application that uses standard Microsoft Windows 95 calls—which means Layla works with virtually all of today's most popular programs, including Cakewalk's Cakewalk Pro Audio™, Steinberg's Cubase Audio™, and Sonic Foundry's Sound Forge™ (to name just a few). You also get support for software plug-ins from respected manufacturers like Waves and Arboretum Systems. Don't yet own recording software? Not to worry: Layla comes complete with a custom version of Syntrillium Software's Cool Edit Pro™—a powerful multitrack audio recording and editing environment—so you can enjoy a no-hassle musical experience right out of the box. (Our Macintosh software package, which provides compatibility with a host of professional audio and MIDI sequencing applications, is scheduled for release in Summer '97.)

PROCESS IT That big black square sitting in the middle of the Layla PCI interface is Motorola's latest-generation DSP—the 56301, a 24-bit chip running at an astounding 80 million instructions per second. In addition to being a giant chunk of raw processing power, it's the PCI bus master, meaning that it handles all the routing of data in and around your system. That leaves your computer's CPU free to do things like drawing screens really fast. The 301 also handles audio timing information, so you get dead-on synchronization accuracy and—here's one for the engineers out there—zero-latency sample-positioning (in other words, it always knows what audio is supposed to play when and where).

ECHO IT Why does it say ECHO on the card? Simple. Our strategic partners, ECHO Corporation, are the engineering team behind Layla. ECHO has been providing audio ASICs and DSP system software and drivers to the computer industry for the last 17 years, and their designs have been sold and licensed to such industry leaders as Analog Devices™, Motorola™, Rockwell™, Sony™, S3™, and VLSI™. Why should you care? Because it's your way of knowing that the Layla hardware and software driver (the key to making Layla compatible with so many of the great Windows 95 audio applications) were designed by people who really—we mean really—know computer-based digital audio.

EVENT ELECTRONICS INC

CIRCLE AD NUMBER ON PRODUCT INFO CARD

LIFE OUTSIDE THE STUDIO

A WEIRD WORLD OF BLURRING LINES

Oooo, Oooo. I've found yet a new way to deviate from my assigned path as a pro audio/recording industry columnist—yet a new parallel universe to play in.

THE FAX OF LIFE (NOT REAL LIFE, JUST THE FAX OF LIFE)

I, like most of you, spend a good part of my life within the most precise, accurate and detailed audio environment possible. If you are a studio owner, you are working on or have already assembled the highest-quality, most stable, most revealing control room audio monitoring system possible. While "possible" probably means economically possible for most, the limiting factor may well be what is technically possible for those few hyper-golden ears who have reached the point of money-is-no-object audio.

And if you work for someone else, well, you know the drill. You carefully plan the best moment to show your boss why he needs to get you those new Yada 1000 Gas-Fired, Open-Flame monitors so that you can do the best work possible...for obvious reasons. Then, if you get those, you have to start on your master plan to get that new 16-Gigawatt propane generator to make sure you have enough power to guarantee that the bass notes won't sound mushy on your brand-new Yada 1000s. The point is, nobody works on junk unless it's disco.

We are the coolest. We have glamour jobs. Yet, we are the ultimate geeks. We actually spend lunch time drooling over new tweeter technology with our cool geek buddies. Or new digital surround encoders, or new ways to eek one more scan line in our NTSC raster. Or mics that are more precise. Or used Russian or NASA atomic clocks for insanely stable house master 44.1 for all your clockable A/Ds. Yes, my brothers and sisters, we work in a world of geek-dry audio precision.

BY STEPHEN ST.CROIX

—CONTINUED ON PAGE 206

ILLUSTRATION: KITTY MEEK

The Logic System:

Logic Audio – The Pros choice. Feature rich 960ppq real-timer Sequencer. Professional Scoring & Printing. Unlimited Virtual Mixers with full automation. Up to 24 tracks of digital audio with intense offline and real-time DSP editing.

Logic Audio Discovery – Entry level price with a professional feature set. 960ppq real-time sequencer with surprising scoring and printing. Simplified MIDI environment with virtual mixers and automation. Even real-time DSP.

Audiowerk8 – Complete Digital Audio Recording Solution. 2 in, 8 out, S/P-DIF I/O, PCI busmaster digital audio card & VMR control surface software for MAC or PC.

Unitor8 – 8 X 8, single rack space, Cross platform MIDI interface. Stack up to 8 for a maximum of 1024 MIDI Channels. Read/write SMPTE for LTC/VITC .

Logic – The MIDI Masterpiece. The most integrated 960ppq real-time sequencer to date. Professional scoring and printing and a totally user definable interface. Unlimited virtual mixers and editors. Full automation, full SYSEX support and more.

MicroLogic – The Beginners Dream. The Perfect introduction into the world of real-time 960ppq MIDI sequencing with surprising scoring and printing. Full GM and GS support included will full automation. A great value.

SoundDiver – The Ultimate in Synthesis Patch Management. Universal Editor/Librarian for Mac or Windows 95.

Got a computer? Start recording.

Digital audio recording is as easy as tape. Introducing Audiowerk8, Emagic's cross platform, PCI busmaster digital audio recording card. With 8 discrete outputs, stereo inputs and digital I/O, Audiowerk8 ships with VMR, the "Virtual Multitrack Recorder". Software so transparent, the manual is optional.

Audiowerk8 and VMR gets you up and running with a complete plug and play digital audio recording solution. It makes hard-disk recording as easy to use as tape.

The VMR control surface is simply a virtual representation of an 8 track linear tape deck. Just like any multitrack, VMR lets you record an instrument on any track, punch in on the fly, mix with a traditional mixer, add outboard effects and your done.

- Playback of 8 tracks while recording two further tracks.
- Practically unlimited number of alternative tracks.
- Seamless cycle and punch in/out on the fly.
- Soft scrolling wave form display.
- Up to 24 position memories, set & recall on the fly.
- 8 discrete outputs and stereo digital I/O with Audiowerk8.

Upgrade to Logic Audio Discovery or Logic Audio for increased track potential, DSP and Automation. Logic Audio can support multiple AW8 cards and can even be used in tandem with any other supported audio soundcard, simultaneously. Audiowerk8 with VMR erases the boundaries between linear tape and modern digital audio recording. The Choice is Simple. MSRP $ 799.

Emagic Web Site
http://www.emagic.de

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emagic
Technology with Soul.

CIRCLE AD NUMBER ON PRODUCT INFO CARD

MORE SUMMER READING

THE BIZARRE WORLD OF ACOUSTIC INSTRUMENTS

This month, I'm continuing my recommendations for your get-your-face-out-of-your-damn-computer summer reading list. Last month, just in case you missed it, I talked about two impressive and very readable books. *Tube: The Invention of Television*, by David E. and Marshall Jon Fisher (Counterpoint), reminds us that the development of the most important entertainment technology of the 20th century was marked with corporate intrigue, legal machinations, political backbiting and egomaniacal personalities who make Bill Gates look like Shirley Temple. *Electric Sound*, by Joel Chadabe (Prentice Hall), does a fine job of telling the century-old story of electronic music, from Thaddeus Cahill and Leon Theremin, to Moog, MIDI, multimedia and beyond. Please go out and get these, now—as my grandmother used to say, God forbid you should learn something.

The other new book to grab my attention recently is one that is both readable and listenable. In fact, it's one of the few examples of "multimedia" I've seen come down the pike that I consider truly successful. It's a book about music that comes with a full-length audio CD. So what? I hear you cry. Well, this may be a small (and obvious) step to you, but if you think about it, it's the sort of thing that really wasn't possible until a few years ago. Oh, folks have been packaging recordings and literature together for years, but the results have always been less than satisfactory.

BY PAUL D. LEHRMAN

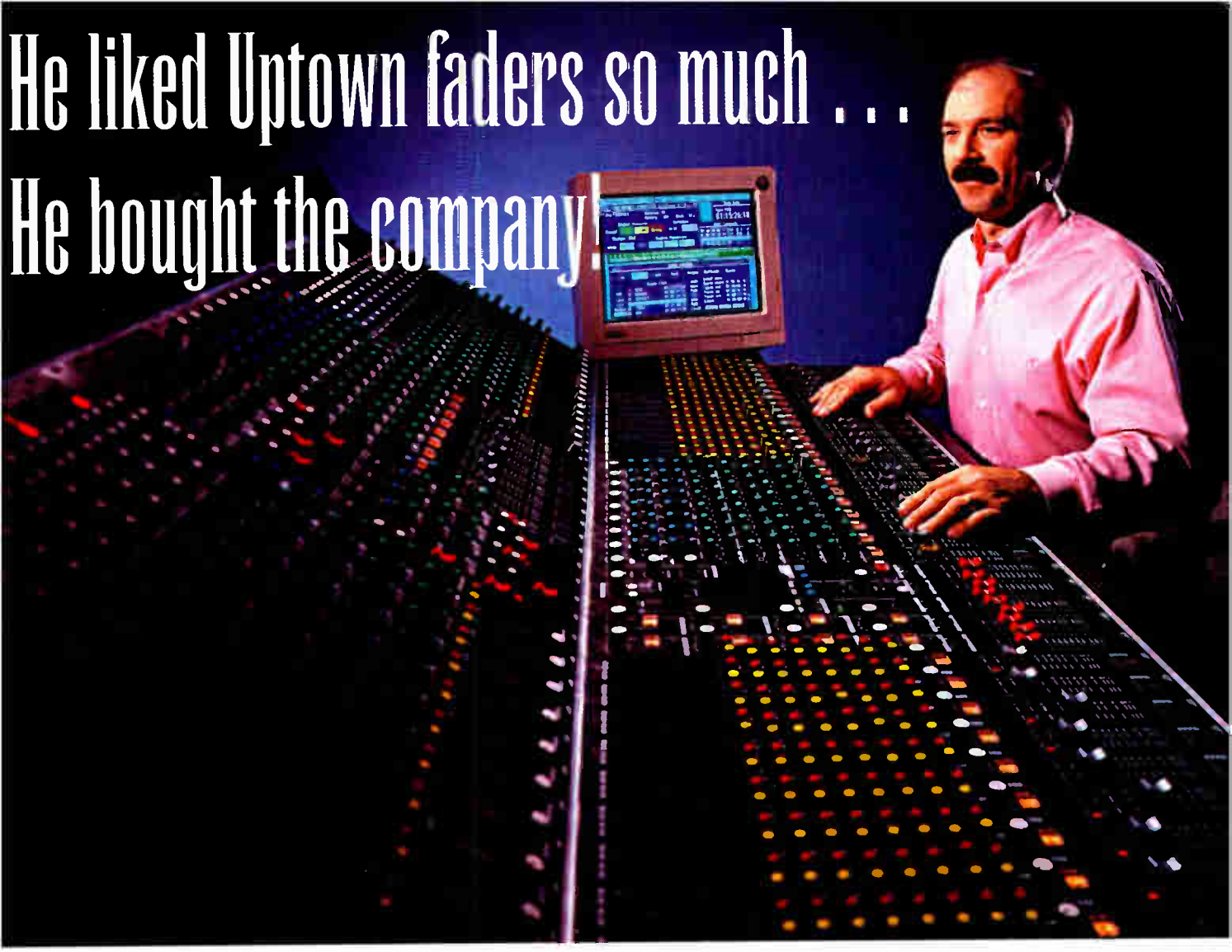
For example, when was the last time you got an LP packaged with a book? (The last one I got was the horrific Morse code training program I endured as a pre-teen.) Of course, there was the ubiquitous Sound Sheet, but few turntables could track them well (if your platter had ridges on it, playing these was a great way to bend your stylus cantilever beyond recognition), and they rarely held up after more than a couple of times through. Cassettes made for bulky and somewhat fragile packages, and people's playback equipment was so variable it was hard to rely on the quality.

But manufacturing CDs is now cheap enough that they are a practical addition to almost any decent-

PHOTOS COURTESY OF ELLIPSIS ARTS

PHOTO MONTAGE: KAY MARSHALL

He liked Uptown faders so much . . .
He bought the company!



When Larry Droppa* was looking for an automation system to fit the renowned Paragon Console, a variety of systems were considered. After all, he couldn't put just any automation into the most sophisticated live mixing console ever built — he needed the *best*. And he found it in the System 990 from **Uptown Automation Systems,** the leader in high quality moving fader automation. An Uptown Automation system is easy to use, installs in virtually any console, and is one of the most affordable automation systems on the market.

Uptown
System 2000

Uptown has hundreds of systems installed in the most prominent Music Recording, Post Production and Live Theater facilities in the world, so Larry's decision to buy Uptown Automation was, well . . . *automatic!*

Are you looking to upgrade your existing console or are you about to purchase a new one? Call Uptown and find out more about our 990 and 2000 series. It may be too late to buy the company — but it's not too late to fit your console with the best automation system available!

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Columbia, MD 21045
410-381-7970
fax 410-381-5025
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e-mail: sales@faders.com
In Canada contact: Sascom Marketing at 905-469-8080

UPTOWN AUTOMATION SYSTEMS INC
AN ATI COMPANY

*President of ATI/Paragon and live sound engineer for Stevie Wonder

CIRCLE AD NUMBER ON PRODUCT INFO CARD

sized book, and indeed there are thousands of such titles available today. Unfortunately, the vast majority of these are books about some aspect of computers, with CD-ROMs containing a few relevant documents and several hundred megabytes of shovelware (not to mention an AOL browser). Or else they're really record albums that happen to come with exhaustive liner notes. Perhaps I've missed something, but to my knowledge, this is the first product I've seen in which the book is given top billing and accompanied by a full-length, audio-only CD.

Of course, the sheer innovation value wouldn't be worth much if the content was no good (how's that for a revolutionary concept?), but I'm happy to say that the book I'm about to tell you about is an admirable piece of work on all counts. While either the book or the disc can be enjoyed separately, and either one could make for an enjoyable few hours, as a whole they are greater than the sum of the parts, and together make for a unique and delightful couple of evenings.

Gravikords, Whirlies & Pyrophones was written and produced by Bart Hopkin, editor of *Experimental Musical Instruments*, a quarterly journal out of Northern California, and published by a feisty new "new media" house in New York called Ellipsis Arts. It's about musical instruments that you've probably never heard of, and without the benefit of this book, never will.

Most of the development of musical instruments in this century has been centered around electronics, but science in this period hasn't *just* been about electronics.

As Chadabe so well documents in his book, most of the development of musical instruments in this period has been centered around electronics—either using electronics to enhance the sound of existing instruments, like the electric guitar, or to create totally new sounds that could not exist in nature. In the last dozen years, this progress can even be said in some regard to have turned back on itself, as electronics are increasingly put to use not to create new sounds, but to simulate and replace older instruments.

But science in this century hasn't *just* been about electronics—it's also been about new materials and manufacturing processes that have inspired quite a few inventive souls to come up with brand-new ways to make music that rely on fingers, arms, feet, lips, tongues and breath—not knobs, voltages and bits. Not many of these devices have caught on, because unlike with keyboard synthesizers, Joe Average Musician can't just sit down and make awesome sounds with them.

In *Gravikords, Whirlies & Pyrophones*, Hopkin takes us on a tour of some three dozen unique and often bizarre specimens of the instrument maker's art. A few might be familiar to students of the esoteric—the Theremin, Don Buchla's Thunder and Lightning, or the 43-note-

per-octave string and percussion instruments of Harry Partch—but the majority are totally new, certainly to me. The instruments run the gamut of materials, complexity, sizes, and even who is supposed to play them. Some are virtuoso instruments, like William Eaton's stunningly beautiful harp-guitars and lyres. Others are designed to be played by amateurs: Godfried-Willem Raes' Pneumophones are a bunch of air-filled cushions, connected by hoses to compressors and various types of air outlets, that make sounds when people sit on, squeeze or hug them.

A lot of them fit into the realm of sculpture, like Reinhold Marxhausen's "manual walkmans," which are metal helmets with spikes sticking out of them that transmit, resonate and amplify tiny sounds from the world to the listener in a kind of private micro-concert; or Brian Ransom's haunting Deities of Sound, which are ceramic flutes and horns that take on organic, sometimes human, shapes. Some are extremely playful, like Arthur Frick's Beepmobile, a giant three-wheeled horn, or his Tug, which is a large reed organ driven by two people sitting on a see-saw. Many comment on modern civilization by incorporating castoff objects into their design, like Wendy Mae Chambers' Car Horn Organ, which is precisely what its name says it is (and reminds one a great deal of PDQ Bach's legendary "hardart," as revealed in his "Concerto for Horn & Hardart"); or Ken Butler's Voices of Anxious Objects, a room full of Rube Goldberg-like mechanical "musicians" that are operated from a two-octave keyboard.

The shortest piece, mercifully, is the Car Horn Organ's 90-second rendition of "New York, New York."

There are some extraordinary historical instruments, too, like the unique oboe/saxophone built entirely out of bamboo by Sugar Belly, a Jamaican musician in the late 1950s; and the monstrous Dr. Moreau-ish hybrids of harps and bass viols built by Arthur K. Ferris in the 1920s and '30s, some of which required two people (preferably a man and a woman—he called them "courting instruments") to play.

All of the medieval elements are represented: Jacques Dudon builds instruments filled with water, where resonance changes as the liquid moves around. From the Earth comes Nazim Özel's Semi-Civilized Tree: a branch cluster from a live oak tree, stripped of its bark and strung with strings in every possible direction to create a kind of three-dimensional harp. From fire we have Michel Moglia's Fire Organ (the "pyrophone" of the title), which uses 30-foot stainless steel tubes filled with flame to produce huge, preternatural noises. Other instruments are made of clay, plastic, glass, brass, stainless steel and all sorts of combinations.

What's a Whirly? Simply one of the corrugated plastic tubes you see kids spinning around at outdoor concerts and on the beach, making those unearthly howls. Australian sound artist Sarah Hopkins (no relation to the author) makes art with them, using custom-made tubes up to 12 feet in length (she calls those "The Deep Whirly Mother") in a performance ensemble

she directs. And the Gravikord? Sorry—you'll have to find that out for yourself.

This is not a weighty tome. If you're looking for a definitive history of alternative musical instruments, or detailed plans on how to build these babies yourself, you won't find them here. Unlike the two books I wrote about last month, I don't see this one showing up in too many college courses. On the other hand, it is gorgeously produced, with beautiful full-color close-ups of the instruments and their creators. And though perhaps the text is short on detail, there's enough there to understand both the instruments and what induced their creators to make them. And it's obvious that Hopkin loves his subjects.

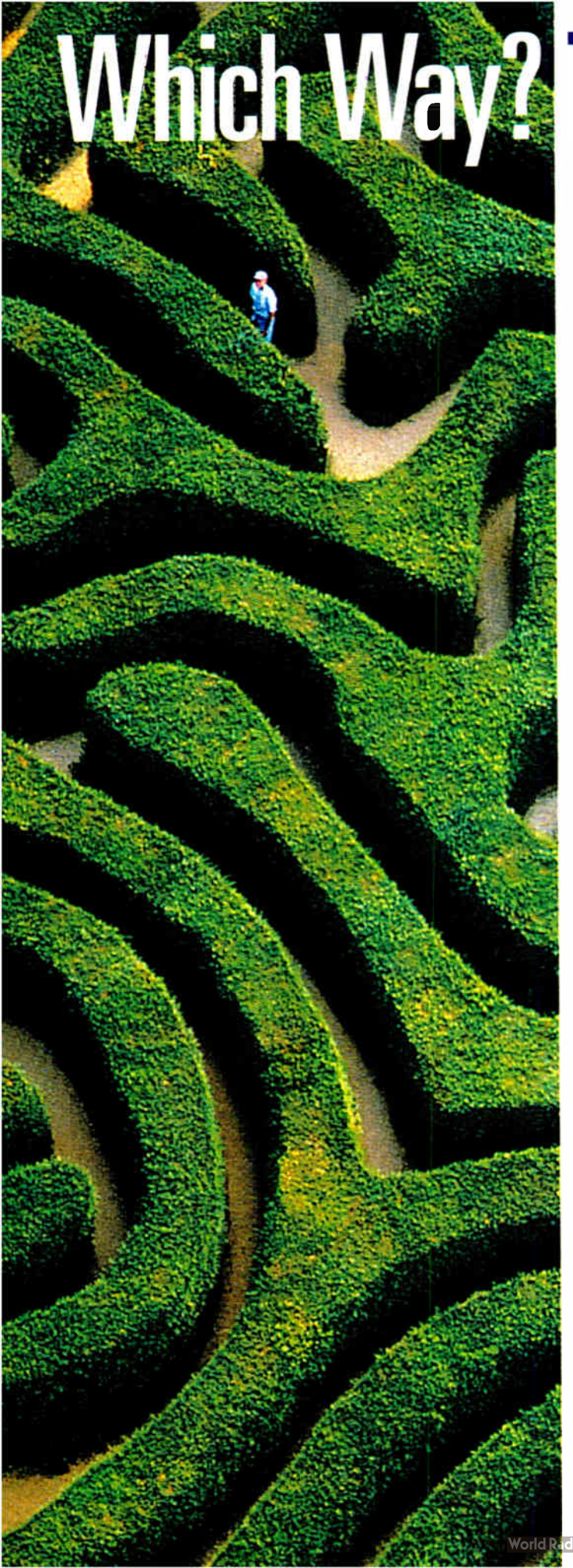
There's a funny and trenchant foreword by singer/songwriter Tom Waits, who relates his own experiences with nonstandard musical instruments, which started when his wife suggested he sing through a bullhorn. "It's possible to do the same thing with an equalizer," he says with typical irony, "but nothing beats the drama of a bullhorn." Before long he was scouring hardware stores and dumpsters for the unique sound-producing objects they contained, stuffing microphones into the springs of old upholstered chairs, or taking the rubber off of windshield wipers and recording them squeaking on the glass. "With the digital revolution wound up and rattling," he concludes, "the deconstructionists are combing the wreckage of the age." Like much of Waits' work, I'm not sure what it means, but it certainly sounds good.

Hopkin tells about some 40 innovative instrument makers in all, most of whom have created whole families of unusual sound machines. The CD, which runs a full 72.5 minutes, shows off 18 of these creations, not just little snippets, but whole pieces up to six-and-a-half minutes long (the shortest piece, mercifully, is the Car Horn Organ's 90-second rendition of "New York, New York"). About a third of the cuts have appeared on recordings before, but probably not recordings you'd know, and the remainder are available here for the first time. The recordings are uniformly respectable, and some are exceptional. The juxtaposition of the pieces, which range from meditative, ethereal washes and forest-like ambiences, to percussion-filled battle zones and Caribbean dance music, is pretty jarring, but with the book as guide, the programming works quite well.

The CD is also a little short on detail, and it would be nice to know at least a little more about the recording processes. Given the highly unusual nature (and sometimes enormous scale) of some of the instruments, I suspect that there's a motherlode here of truly bizarre miking techniques. If you think miking a steel drum or a bagpipe is hard, imagine trying to capture the sound of Jean-Claude Chapuis' roomful of glass harmonicas and other crystalline instruments, or Harry Partch's gargantuan Marimba Eroica.

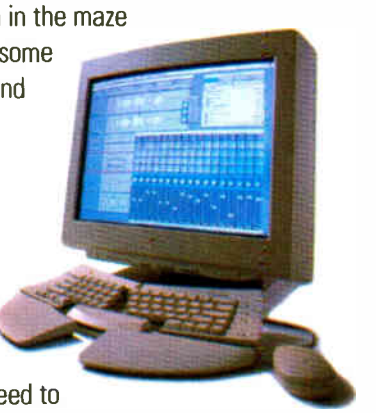
Perhaps above all, one is impressed with the sheer physicality of the instruments described in *Gravikords, Whirlies & Pyrophones*. Music is about human gestures, these instrument makers all say—even the electronic ones like the Theremin and Lightning involve intricate motions of hands and arms through space. No one is pushing buttons, tweaking tiny knobs or writing code to make these sounds. This book is a wonderful reminder that the making of music is a human endeavor, and while the machines that help us are invaluable, it's our control over them that makes them sing. ■

Paul D. Lehrman used to play 11 different instruments, all of them completely normal.



This Way.

Today's Digital Audio Workstation is an indispensible tool for Post Production, CD Premastering, and Music Production. With each new twist and turn in the maze of technological possibilities, some systems lead, others follow, and many fall by the wayside.



Through it all, one system has consistently emerged as the technology leader – delivering an impressive list of achievements that have taken our users where they need to be to stay ahead of the competition.

The Path To Success

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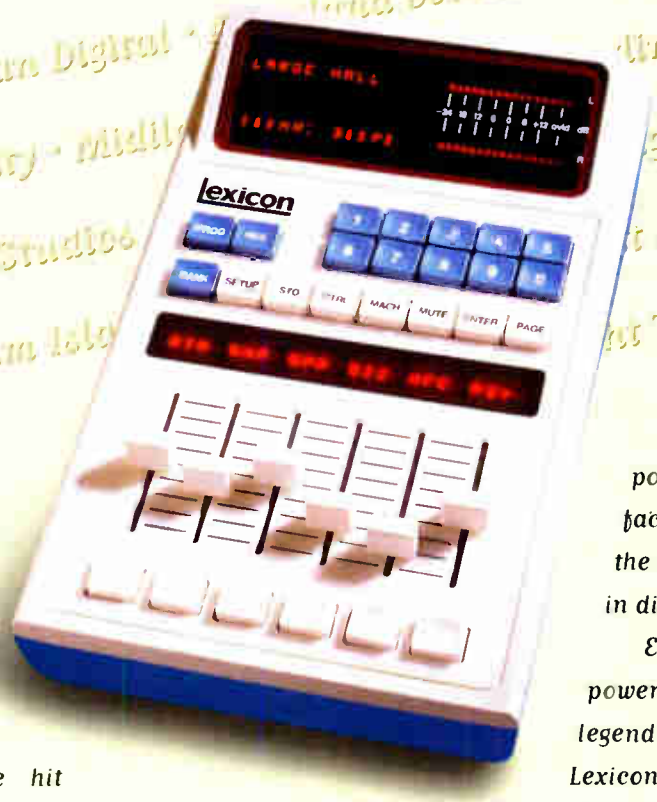

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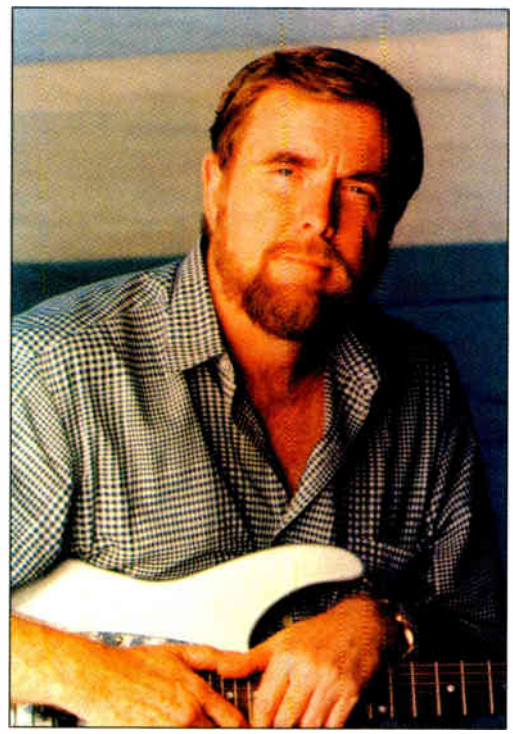
HARTLEY PEAVEY

CONTINUOUS REINVENTION



To say that Peavey Electronics is an American phenomenon is something of an understatement. Formed 32 years ago by renegade designer and ex-retailer Hartley Peavey, the firm has developed and marketed a wide range of music instruments, sound systems and studio gear, all of which combine state-of-the-art technology with outstanding value.

During the early '70s, Peavey Electronics employed about 150 people. At that time, the expression "team" took on new significance with the marriage of Hartley and Melia Peavey, who joined her husband in the day-to-day running of the company, eventually assuming the position of president and head of marketing. Today, the firm operates four complementary divisions—Music, Audio Media Research (studio monitors, amplifiers, mixers, mics and accessories), Architectural Acoustics (MediaMatrix computer-controlled installed and commercial sound systems) and Cinemacoustics (cinema sound systems and accessories)—and employs 2,400 people around the world. The company's various facilities include a loudspeaker-manufacturing plant in Foley, Ala., and a regional manufacturing/distribution center in Corby, England.

"During these 32 years, we have built not only what we feel to be a world-class array of products and production capabilities, but also a highly professional and competent work force," Hartley Peavey says. "Our company not only builds products, it builds people. We feel that people are the foundation of any successful undertaking."

In 1992, the firm received the prestigious National Literacy Award for its participation in and the development of a Job Skills Education Program. As Melia Peavey was quoted in a memorable ad that ran at the time, "Without music, the soul is silent. Without education, the world is dark." Fine sentiments indeed.

We caught up with Hartley Peavey between a series of meetings during his busy, hands-on day at the company headquarters in Meridian, Mississippi.

You seem to have packed a lot into the past three decades. How did it all begin?

I had the good fortune of growing up in a very interesting area, musically speaking. My father happened to be a sax player in a swing band in the '30s. He played all over the Southeast because during the Depression, there were no jobs in a little country town called Meridian, Mississippi. He got tired of the road and came back to Meridian in '38 and opened a music store, which is the only thing he knew, with $50 and a secondhand piano. I was born in 1941 and was literally raised in a retail-music environment. My parents insisted that I play music—they made me a deal that if I would play in the band, they'd buy me a car. I did and they did, and that was the end of the junior high band. About 1957 or so, I went to see a guy named Bo Diddley and went crazy; I wanted to play guitar. I went to my dad, and he told me that he'd get me some guitar lessons, and, if I was good at it, he would buy me a guitar. Well, I wanted the guitar *right away* but he said, "No way." I kept on badgering him, and he finally gave me an old classical guitar. But nobody told me you couldn't put steel strings on a classical guitar, so that was my introduction to guitar repair!

I had a guitar with steel strings, and now I wanted a pickup—at that time pickups sold for $39, which might as well have been $39,000 because I didn't have the money. Again, he told me that when I learned how to play the guitar he would get me one. Well, that wouldn't do, so I built a pickup. I ordered magnets from a magazine and got some 38-gauge wire, sat down at our kitchen table and hand-wound the pickup. It worked—not very well, but it worked. Then I told my dad that I had the guitar and the pickup but I needed an amplifier...You can imagine his response.

It's been said that necessity is the mother of invention, so I built my first amplifier in late 1957, which turned out to be marginal at best. I later found out that I plugged my guitar into the RIAA phono circuit, which rolled off the high end and made it very dull-sounding. That was my introduc-

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tion to amplifier building, and for the next eight years I tried to be a musician. I graduated from high school in 1960, went to junior college for one year, then decided to go to a major college. I graduated from [Mississippi State] University in 1965, but during that time I played in bands, bought and sold equipment, worked as a disc jockey and built quite a few amplifiers.

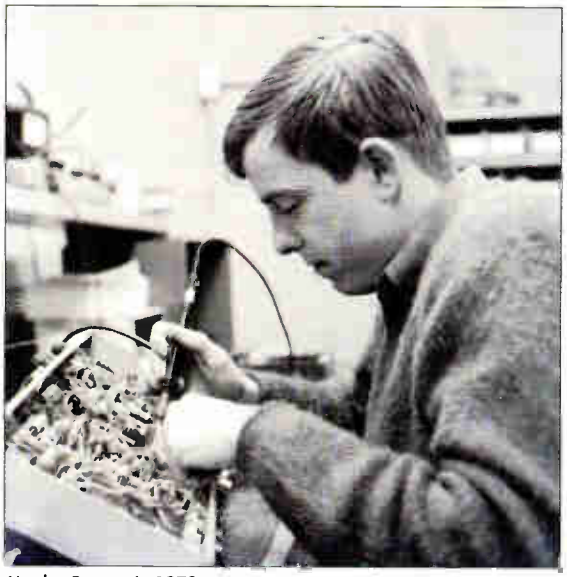
What was your major in college?

Management and marketing. I started out going to a trade school in the sixth grade; I was the youngest student they ever had. By the time I graduated from high school, I'd had four semesters of machine shop. I could make virtually anything out of metal. I had mechanical drawing. I took two semesters of basic and advanced electronics. Since I had no money, if I wanted anything I had to make it myself. I'm very much a mechanic.

During my junior year in college—I'd been replaced in several bands—I decided that my future probably wasn't very bright in being a rock star, so I asked myself, "What can you do?" I loved music and loved hanging around musicians. Since it was obvious that my musical talent was somewhat lacking, the obvious answer was that I could build things. Moreover, I enjoyed it. This was circa 1965, when all the conglomerates started to come in. CBS bought Fender. Norlin Corporation owned Gibson at that time. Gulf & Western owned the distributor for Marshall. Everybody was charging ridiculously high prices for musical instruments—some still do!

What was your original intention back in '65 in setting up Peavey Electronics?

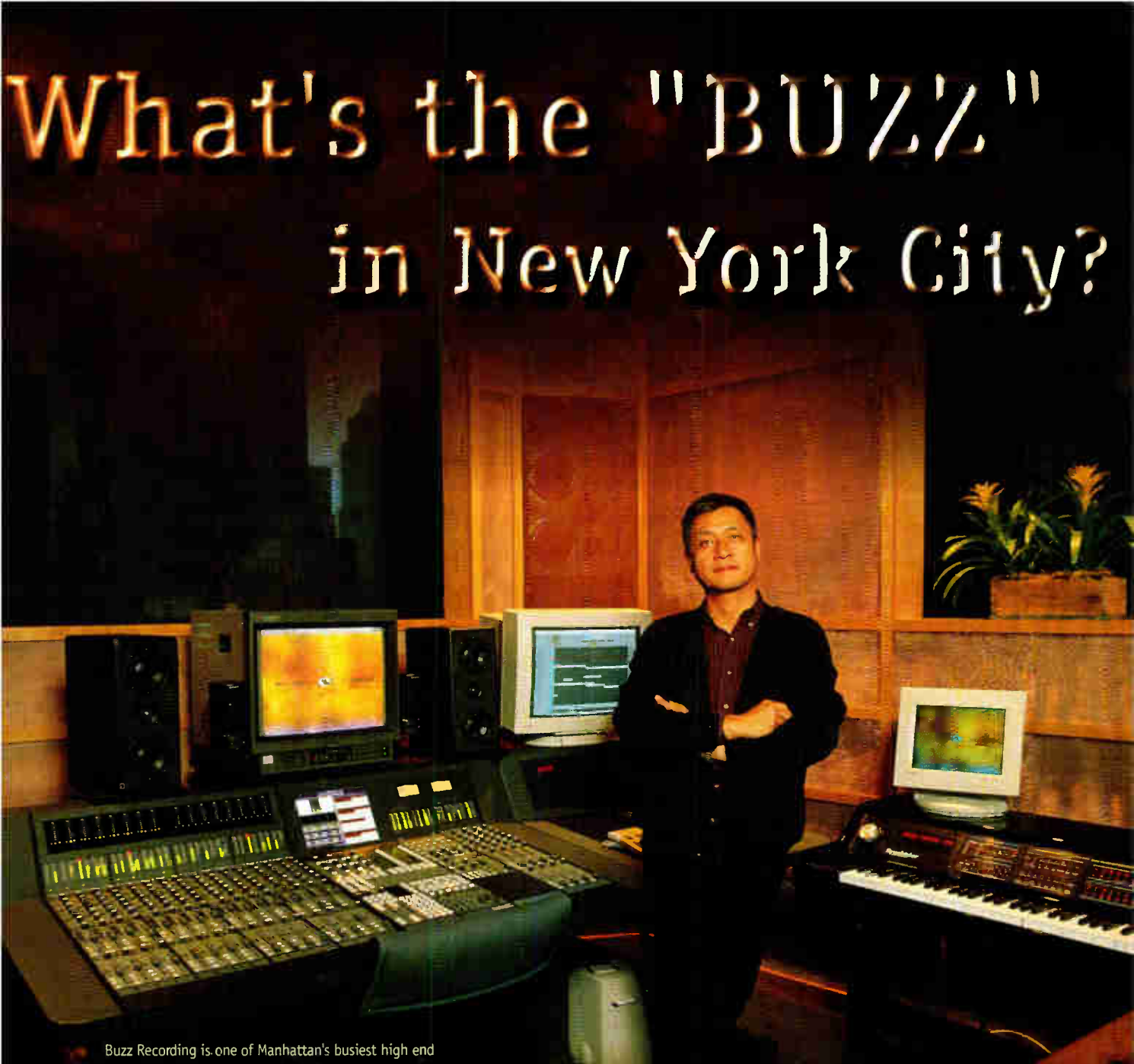
Every musician I came in contact with always told me the same thing: They wished that *somebody* would make good gear for a fair and reasonable price, which made perfect sense to me. I set out to make the best gear I knew how, but to do it like my idol, Leo Fender. If you look at his early work, he didn't have any mother-of-pearl inlays or any fancy stuff—it was straight-ahead, working man's equipment. Back in 1947, everybody made fun of him because he did something different. The fact is that *very* few companies that have famous names are under the same ownership and management as they had 32 years ago when I started. Most have changed hands many times.



Hartley Peavey in 1972

You currently make around 3,000 products—including export versions—

What's the "BUZZ" in New York City?



Buzz Recording is one of Manhattan's busiest high end commercial post houses. Their creative approach to audio can be heard in national TV ads from Pepsi, Bud Light and Pizza Hut. In order to keep up with the demand for their work they installed a Euphonix digital-control console in Studio B. For high end audio post, nothing beats Euphonix sound quality, creative signal processing, and blazing speed.

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"The Euphonix is a very musical console. It has a nice, warm sound that is absolutely great," says Mike Marinelli, mixing manager for Buzz. "We love the ease of operation of this console. We needed something that was going to be installed and put to use right away, and with the fast learning curve of the Euphonix, that is exactly what we got." Marinelli continues, "Because Buzz is a sound design atmosphere rather than strictly a mixing room, it is important to have everything online - synthesizers, DAW's, mic inputs, effects processors, etc. Everything is normalled in, which means we can quickly change from the Synclavier to Macintosh sound cards to synth modules in just seconds."

pictured: Jun Mizumachi, sound designer and post specialist, Buzz Inc.

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ranging from musical instruments, through pro audio mixers, amps and related systems, to live sound rigs and computer-based installed arrays. But your initial thrust was into what we might refer to as performance audio?

I began doing what I knew how to do: building relatively simple musical instrument amplifiers. A lot of people assume that we haven't changed over the 32 years since then, which is absurd! It's human nature to try to "pigeonhole" somebody. We've grown from a one-man operation in an attic room to a company with 33 facilities comprising 2.5 million square feet and 2,400 people—quite an improvement, I'd say.

You've also expanded your focus during the years.

Some people would tell you that it's rocket science to make a guitar amplifier. The simple truth is that *isn't* true. Some competitors are content to reinvent the past as opposed to doing something better. I personally think that this "retro thought process"—that the best guitars and amplifiers were made back in the '50s—is wrong. As a practitioner of the art, as a manufacturer, as a technician, I can tell you that the best that there will ever be has *not* already been built. The truth of the matter is that there were some great guitars and amps back in the '50s, but all of them weren't great; the problem was consistency (or lack thereof), as well as poor design and/or manufacturing in some cases.

The idea that the best guitars and amplifiers were made back in the '50s is wrong. The best that there will ever be has not already been built.

What was behind your move into recording and live sound systems?

By approximately 1967-68, everybody and their brother were making guitar amplifiers, so we looked for something to set Peavey apart from the rest. I'm a rebel. I decided that somebody needed to make a good sound system for a good price, so we came out with a 100-watt P.A. system, four channels, two column speakers. Instead of it being [sold for] $1,000, we came out with one for $599. And the competition started saying it's impossible. The fact of the matter is that my competitors were charging what the market would bear, not what it costs to produce it. I was brought up in the retail business. My dad always taught me that you add a fair and reasonable margin and let the price be as low as possible.

Often, music manufacturers are owned by people who have no real connection to music except that they want to *profit* from it. What is their primary objective: to make the best product in the world, or to make the best profit in the world? Therein lies the fundamental difference between Peavey and most other manufacturers.

Peavey is one of the most vertically integrated companies in the business. The weak link in all sound systems is the loudspeaker. We're the *only* company of our kind to make our own loudspeakers. We make microphones, guitars, pickups for guitars, microphone

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Would it work any other way for you? Don't you need control over unit costs to ensure that you can sell the product for a reasonable price?

Obviously, if we make most of the parts for our products, not only can we make it better, but we can also make it at a lower price. A common assumption is "The more you pay, the more you get." The caveat is that you *only* get what you pay for, *if and only if* all other things are equal. That's where things go astray. Naively, many musicians assume that all manufacturers are just alike. Manufacturers are no more alike than all musicians are alike. At Peavey, we've always done things a different way. Not just to be different, but to be *better.*

Music and sound products are not magic; they represent science, technology and experience. The cost also reflects the business philosophy and organizational makeup of the manufacturer. Melia and I own all the stock in Peavey, and we've never paid a dividend. Any profits we make go back into the company. That is why we are one of the most modern, high-tech manufacturing facilities in the world, and it's paid for! Therefore, we don't have to factor interest on huge bank loans, stockholders, venture capitalists, etc. into our selling price. Throughout the history of our company, we've tried to avoid this kind of thing, while most of our competitors have embraced it.

After you've made a product, how do you decide on the means of sales and distribution, ensuring that customers can afford the product at the base price you recommend?

We've decided to go with select dealers. Our plan is to satisfy the customer. A lot of customers want to buy at the lowest possible price. Then, if they have a problem, they want to scream and yell because there's no service. But when you buy from a mail-order catalog and there is a problem, there's no place to take it. We sell through a very small number of dealers—we have about 1,300 dealers around the country—as opposed to our competitors, who have many thousands of dealers. We also train our dealers; we have an 80,000-square-foot training facility that is unique in the industry. We train dealers personally to set up sound systems, to understand the science of sound, to understand impedance matching and symmetrical lines; to integrate a sound system and realize what overload and clipping means, what a compressor is, the difference between an omnidirectional and a cardioid microphone.

You wouldn't believe how many dissatisfied customers we have simply because they use the *wrong* microphone. For instance, a lot of people will go in and do a sound job in a church, take a close-talk microphone—the ball-type—and hang it 12 feet over a choir, and then complain because it sounds bad. The problem is that, for the most part, people selling musical products in music stores learned about sound and equipment the same way they learned about sex—trial and error.

Our prime directive is satisfying the customer. That can best be done by trained local dealers with an emphasis on "trained." We do it once or twice a month; as I speak, we have 45 people in one of our three classrooms.

Do you extend that invitation to overseas distributors?

Absolutely. We have a 227-seat auditorium divided into four separate areas. Each area has headphones, and we have a translation booth in the back of the room, just like the United Nations.

What percentage of your sales comes from overseas markets?

It's about 30 percent—we would like it

—CONTINUED ON PAGE 208

BUILDING THE PEAVEY ELECTRONICS IMAGE

A CONVERSATION WITH MELIA PEAVEY

In addition to serving as president of the company, Melia Peavey oversees the firm's marketing and manufacturing aspects. She stresses that Peavey Electronics has evolved into a complex entity, with involvement in facets of the music and recording industry ranging from guitars and backline amplification, through studio hardware, to computer-controlled sound systems. "Each division has its own set of priorities, its own factories, its own advertising division, so that each is a separate company, even though they are under the large Peavey umbrella," she explains. "That way, they can get all the attention they need instead of just being a sideline."

What is Peavey's image? "It depends on which market you're going after. In pro audio, what I want people to know is that [we produce] an unbelievably high-quality product that customers can depend on forever. That they're not going to have to worry about having to take down a whole array of speaker cabinets because a driver has blown.

"One of the things that we keep telling sound contractors is that we manufacture equipment that has to perform *every* night. Our products are quality-tested; each product is thrown end over end down a flight of stairs; we have chambers that take it all the way down into Arctic temperatures and then up into desert temperatures. Because we export to over 100 countries, we have to make sure that whatever we manufacture will withstand the different temperatures it goes through."

Melia Peavey says that keeping up with safety standards around the world is a "real interesting problem. I'm on a Board of Commerce Committee with 14 other CEOs from companies in the United States—including Siemens and Motorola. We were asked by former Secretary of Commerce Ron Brown to sit on the Safety Committee. One of the things that we're trying hard to do is to consolidate all of these testing agencies. The new laws that IEC is trying to come out with are going to make it almost impossible for anybody to build a power amp! I asked why we couldn't go ahead and make a worldwide standard. It doesn't matter if it is going to be UL, CSA, SEMKO or whatever—let's all get together and have *one* worldwide safety agency. It would save the end-user money and ensure safety for us all.

"One of our amplifiers was going to go up 100 percent in cost to get through these safety agencies. And when it got through, the consumer wasn't going to have even as good a product as we started out with. The only people making any money are these agencies. All of the corporations really want unity—the countries say they do, too—but we'll just have to wait and see. I was really encouraged by the first meeting; there's another one coming up in a few months."

—Mel Lambert

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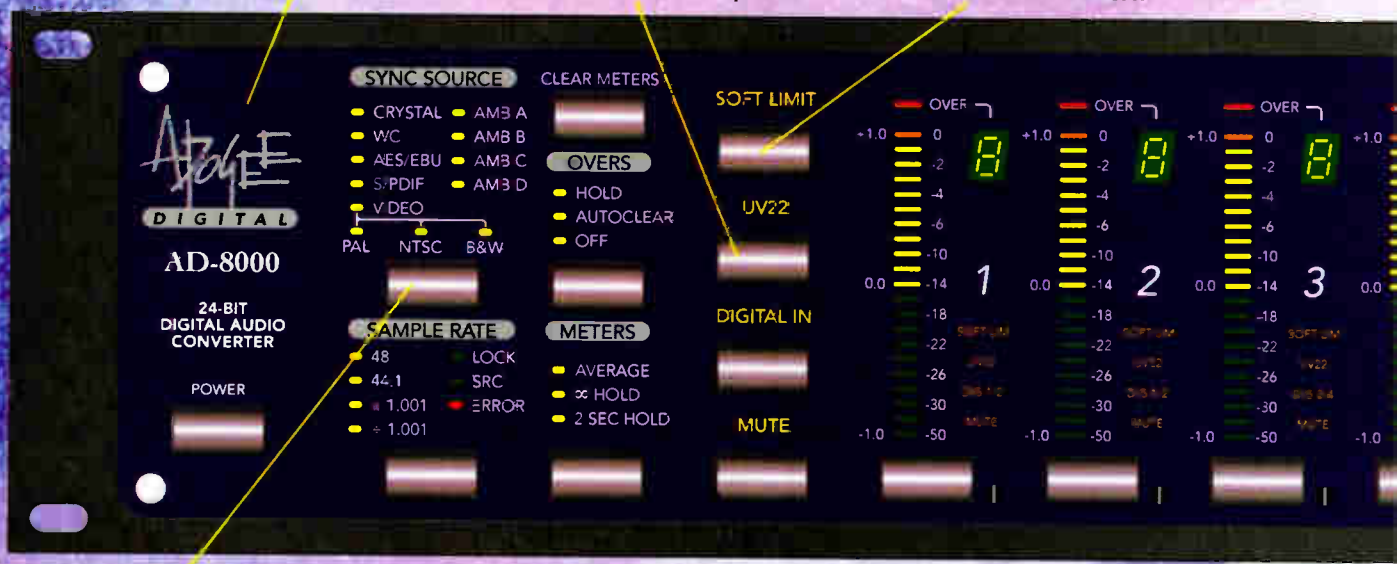

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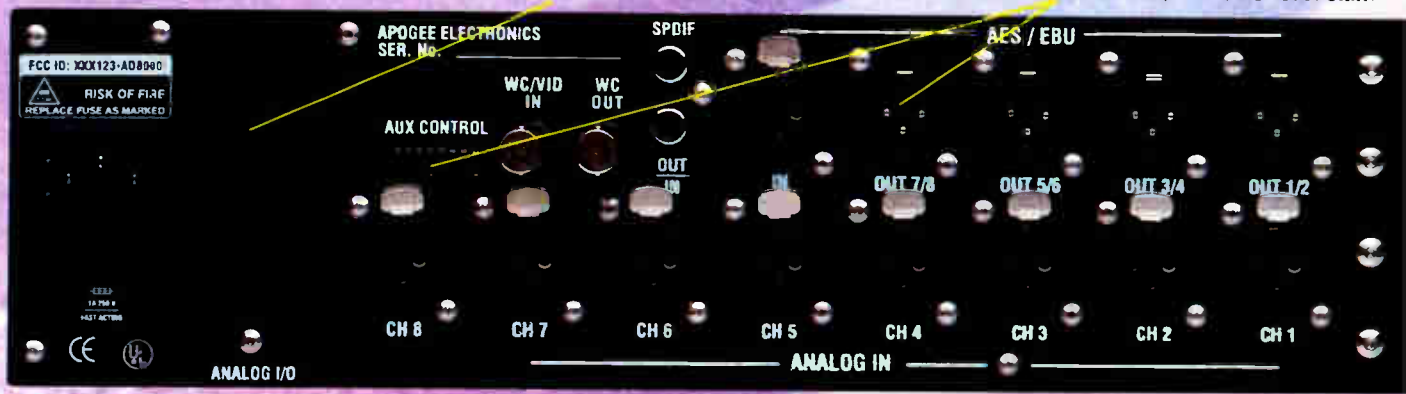

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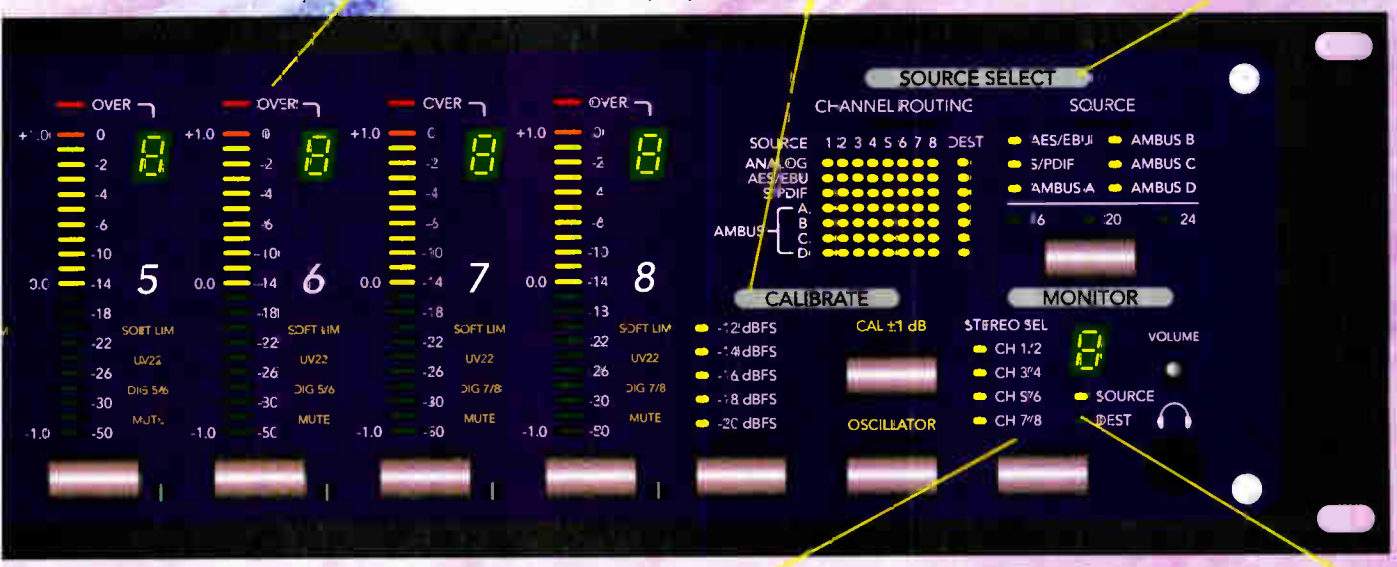
Digital Routing: With the AD-8000's unique digital routing matrix, choose sources and destinations for all your signals at the push of a silver button. AMBUS slots with cards installed are identified for instant access. Combinations of analog and digital inputs may be selected simultaneously.



Format Conversion: All interfaces are available at all times, enabling you to use the AD-8000 as a powerful multi-channel digital format converter—a feature worth thousands on its own. Convert from any interface to *all others* simultaneously, whether they are inbuilt or on AMBUS cards.

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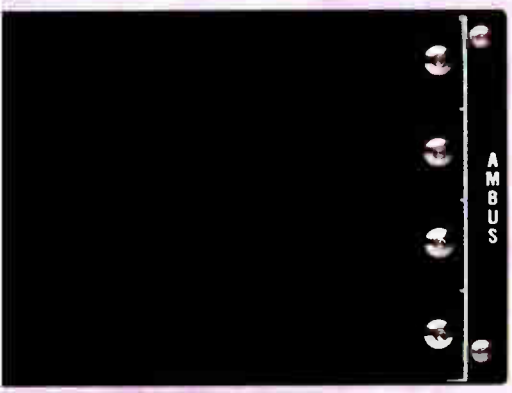

Look for the AMBUS logo on Apogee-compatible products and interface cards

Available AMBUS cards provide additional interfaces including ADAT Optical (shown here) and TDIF (Tascam DA-88), with "bit-splitting" technology for recording 20/24-bit signals on multiple 16-bit tracks. Other available interfaces include a card that provides complete Pro Tools compatibility with no other external hardware. Additional interfaces to follow.*

Use the **AD-8000** *as a multiple format conversion system and transfer between all available interfaces simultaneously.*

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FIVE TALES BY THREE WRITERS

Recording Jazz Combos

The Jazz Passengers And Deborah Harry Get "Individually Twisted"

by Barbara Schultz

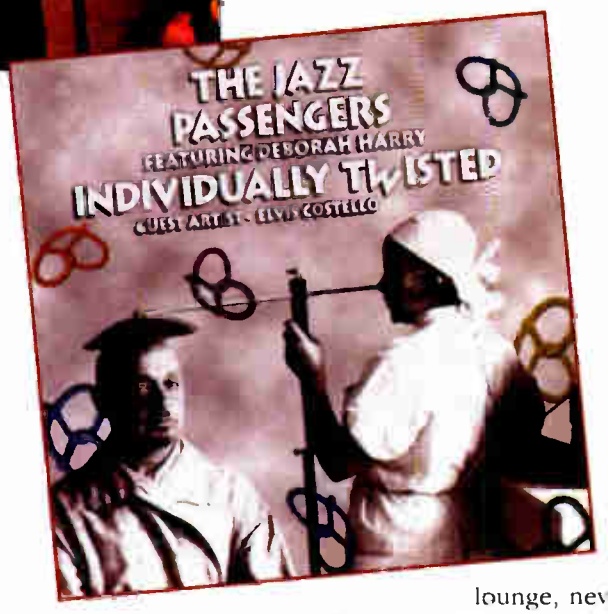
Writing about music is like dancing about architecture. I don't know who said that originally, but those are the words that come to mind when trying to describe the Jazz Passengers. How can you pigeonhole a group that combines lounge-y vibraphone, a moody, low sax, a violin as part of the horn section, Dixieland trombone playing, and then rearranges everything so the vibes are where you expect the sax to be, the trombone becomes as soft and cool as Chet Baker's trumpet, and the sax delivers a hilarious, theatrical punch line?

PHOTO: STEVE JENNINGS

The Jazz Passengers (L to R): Deborah Harry, vocals; Bill Ware, vibes; Roy Nathanson, saxophone; Brad Jones, upright bass; Curtis Fowlkes, trombone; E. J. Rodriguez, drums; and Rob Thomas, violin.

PHOTO: STEVE JENNINGS

How can you pigeonhole a jazz combo, anyway, if the sultry and larger-than-life Deborah Harry is the lead singer? But why bother? The Jazz Passengers know what they're about; they play avant-garde jazz music that at once pays tribute to and deconstructs different jazz forms, from New Orleans-style to big band to bebop to



lounge, never losing the melody, and never losing their sense of humor. And there's no better introduction to the Jazz Passengers than their latest album, *Individually Twisted*, on 32 Records. This record really shows what the band can do, but it's a little more accessible than their previous recordings, in part because of the album's producers.

"When you have a band that wants to reach a wider audience," explains album co-producer Adam Dorn, "and they have a piece that's 28 minutes long called 'Nazi Samba...' I mean, I love these guys, and that song happens to be brilliant, but you're going to limit yourself to the same 1,500 people who bought your records over and over if you keep it *way* avant-garde all the time."

"This record is everything in terms of what the band is and

—CONTINUED ON PAGE 38

Squirrel Nut Zippers: Crazy Name, Hot Jazz

by Rick Clark

Long before it became serious, cerebral music enjoyed by cool customers in smoke-filled coffeehouses, jazz was something you could kick up your heels, dance and get down and dirty to.

—CONTINUED ON PAGE 40

Tom Maxwell and Katharine Whalen of Squirrel Nut Zippers

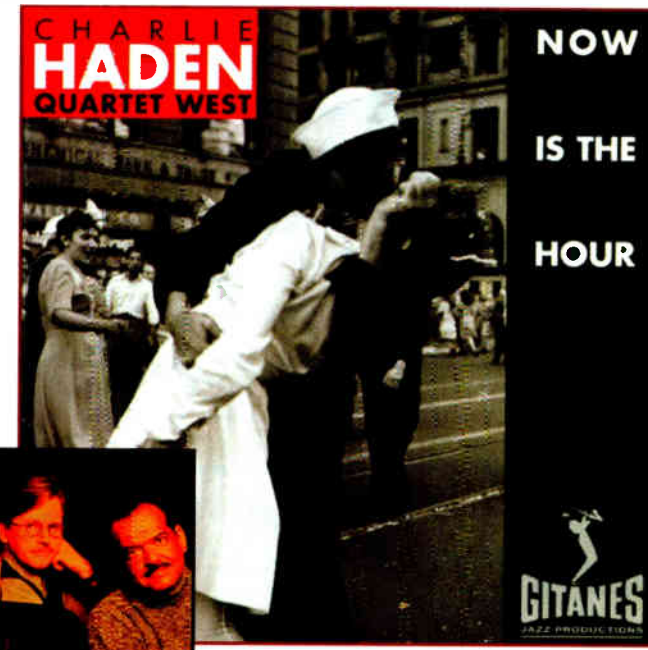
PHOTOS: ROGER MORLEY

Now Is the Time for Charlie Haden

by Rick Clark

One of jazz's most vital contributors is bassist and composer Charlie Haden, a monumental talent whose emotive facility on bass places him among greats like Charles Mingus, Ray Brown and Ron Carter. Haden was a founding member of the groundbreaking Ornette Coleman Quartet, and over the years, has appeared on over 400 releases.

—CONTINUED ON PAGE 48



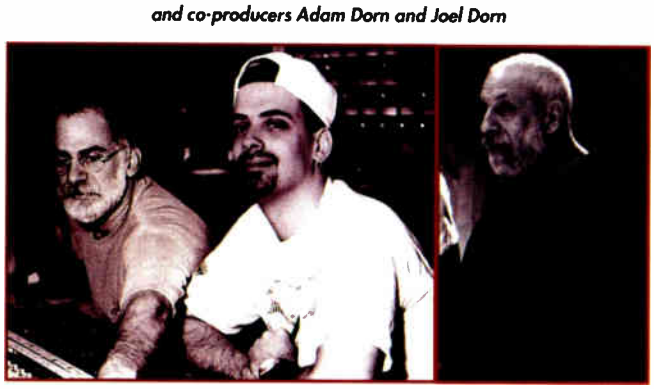
Charlie Haden Quartet West, from left: Larance Marable, drums; Charlie Haden, bass; Ernie Watts, tenor saxophone and Alan Broadbent, piano.

—FROM PAGE 37, JAZZ PASSENGERS

does," adds the other co-producer (and Adam Dorn's father), Joel Dorn. "We didn't change anything, we reined it in just a little. I always try to work with people who already have something and then work with what they have to make a record that's more focused, that heightens what they do."

Joel Dorn, who has certainly worked with plenty of artists who "have something" (Leon Redbone, Roberta Flack, Les McCann, etc.), first became acquainted with the Jazz Passengers at the request of the band's manager, George Gilbert. "I went down to see them at The Knitting Factory, and in 30 seconds I knew I wanted to produce them. I called Adam and said, 'Next time they appear, you've got to go see them,' and he felt the same way."

Jazz Passengers engineer Joe Ferla (left) and co-producers Adam Dorn and Joel Dorn



PHOTOS: TIFFANY R YOST

Adam Dorn is a bass player and keyboard programmer who has worked on Marcus Miller-produced records for Luther Vandross, and a variety of international artists. "There's a certain craziness about the band that's just a turn-on," he says. "We just looked at each other and said, 'We love this.'"

For Adam Dorn, it was gig number one as a producer, and so it was the father and son team's first co-production. They worked with veteran Jazz and rock engineer Joe Ferla

—CONTINUED ON PAGE 51

32 JAZZ

32 Records, the label that released The Jazz Passengers' latest, recently started a new division: 32 Jazz. The new label was created to handle an extensive series of reissues by jazz artists, past and present. The entire series was produced by Joel Dorn and mastered by Gene Paul at dB Plus Mastering. Many of the reissues are double-CDs that include two albums' work, and the liner notes include the original information and artwork, plus recollections of the original producers and observations by Dorn. Two of the label's first offerings are shown above. ■

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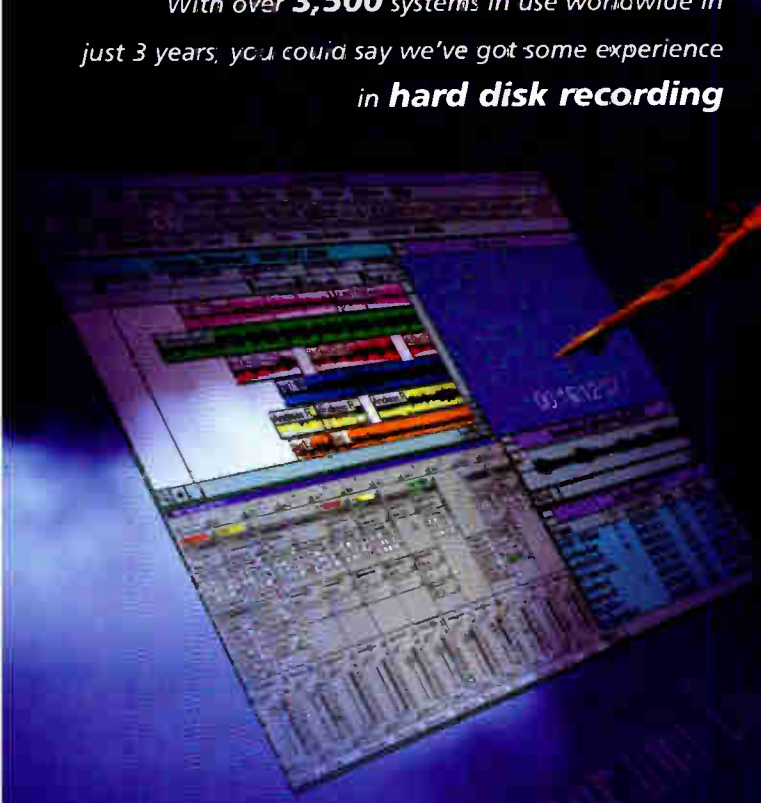

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Back to the Caribbean With Andy Narell

by Rick Clark

The Caribbean Jazz Project, formed in 1993, is the combined vision of three unique and familiar jazz talents: Paquito D'Rivera (sax, clarinet), Andy Narell (steel pans) and Dave Samuels (marimba and vibes). The seven-piece ensemble, which also features Dario Eskenazi (piano), Oscar Stagnato (bass), Mark Walker (drums) and Pernell Saturnino (congas and percussion), delivers a spirited fusion of Latin American grooves and jazz.

All three of the principals have long and im-

—CONTINUED ON PAGE 46

From left: Dave Samuels, marimba and vibes; Paquito D'Rivera, saxophones, clarinet; and Andy Narell, Steel pans.

—FROM PAGE 37, SQUIRREL NUT ZIPPERS

Its roots were in New Orleans, where Dixieland and ragtime were pounded out of clubs and brothels. Squirrel Nut Zippers, a Mammoth Records band out of North Carolina, embrace this element of jazz, as well as other early forms of the genre, with both playfulness and passionate commitment. Their second album, *Hot*, has not only won over fans of old-style jazz, but has become a left-of-center hit with college and alternative music listeners. The Zippers played for President Clinton's inauguration (the 21st Century Ball, and they headlined MTV's Rock the Vote inauguration party) and also performed at the Summer Olympics, as well as landing repeat performances on NPR's *Morning Edition* and *Prairie Home Companion.*

Appropriately enough, the group cut its sophomore CD in the cradle of jazz, New Orleans, at Kingsway Recording Studio. Mike Napolitano worked as the primary engineer, with additional help from Brian Paulsen.

"Kingsway is a world unto itself," Napolitano says, "and a really great place to work. There are no clocks anywhere, or phones and TVs everywhere. All that is cut to a bare minimum. You don't know what day it is, or if it's day or night. There's nothing to focus on other than creating. It's so conducive to doing that, too. There are so many instruments laying around that are inspiring.

"We had to choreograph the recording of each song to get a balance," Napolitano continues. "Tracks like, 'Put a Lid On It,' were basically one microphone for the whole band, and two mics for the drum set. Obviously, since there was one microphone controlling the whole band, we would do takes where we would practice the movement of individuals toward or away from the microphone, to correctly get their levels. If there was a part where the acoustic guitar got a little louder, we would build up steps of phone books, so he could walk up and get the sound hole higher toward the microphone. It was crazy, but once we got everybody's moves down, that would be the take that would get on the record.

"For almost everything, we used two Sony C-37s on the drums, in an X/Y pattern out front, about six to ten feet away. The bass was sequestered away as much as possible with baffles. I generally used a [Neumann] 47 to capture the vocal and remaining bandmembers' performance. Toward the end of the project, extra mics were placed in front of things, like a safety back-up, but they never got used during mix.

"At the most, we used eight mics at any single time. Some songs had an overdub or two. So whenever I miked anything for an overdub, I used two mics to simulate the fact that they played live. There would be one close mic, and one distant mic, to emulate the effect created by the original three mics.

"We used a bunch of different mic pre's, including some that were in the board, and basically we just went from microphone to mic pre through a compressor and straight into the tape machine. There's obviously no subbing of channels or anything like that, since some of the songs only used three mics.

"The Squirrel Nut Zippers all have such a wonderful chemistry," Napolitano adds. "No two people have the same job. And everybody sort of covers a different musical area. They are amazing musicians, and very creative people, whose influences are a little older than most. Jazz conjures up such a serious tone when you usually say it, but that is not what that music originally sounded like. It wasn't this ultra-serious jazz that we are so accustomed to hearing now. The original jazz was wild, crazy music."

The Squirrel Nut Zippers' *Hot* beautifully captures that original jazz spirit. And as for the name, it comes from an old-time brand of chewy peanut-flavored sweets that are still made in Massachusetts. Now you know. ■

AMEK RNCL

The Compressor

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System 9098
Dual Compressor/Limiter
by Rupert Neve the Designer

The addition of a new Compressor/Limiter to my SYSTEM 9098 product family is justified by the continuing popularity of the famous old 2254 devices I designed in the late 1960s. More than 25 years later, their performance undeniably still brings benefits to engineers and producers seeking inconspicuous control over the dynamic range of microphone signals. Just as importantly, they are used today in digital recording to manage critical levels, to preclude the effects of hard, unforgiving clipping and to impart warmth.

In those days, the Compressor/Limiter had to be almost all things to all men. Controls had to be accurately calibrated for the broadcaster and have the right subjective 'feel' for the music engineer. Attack and decay times, the rate of change of slope, the order of harmonics generated by the non-linear transfer characteristic etc. were arrived at empirically after a lot of listening with golden-eared people. The result was a Compressor/Limiter, the 2254 and its later derivatives, which sounded right and over the years achieved an amazing reputation.

The same principles have been applied to the new SYSTEM 9098 Compressor-Limiter. Considerable advances have been made in technology and I am now able to provide a much more flexible device which retains all of the character and musicality of the original design while incorporating some exciting new features.

Ratio, Threshold, Attack and Release are familiar controls with recognisable ancestry but an important new feature called Ambience has been introduced.

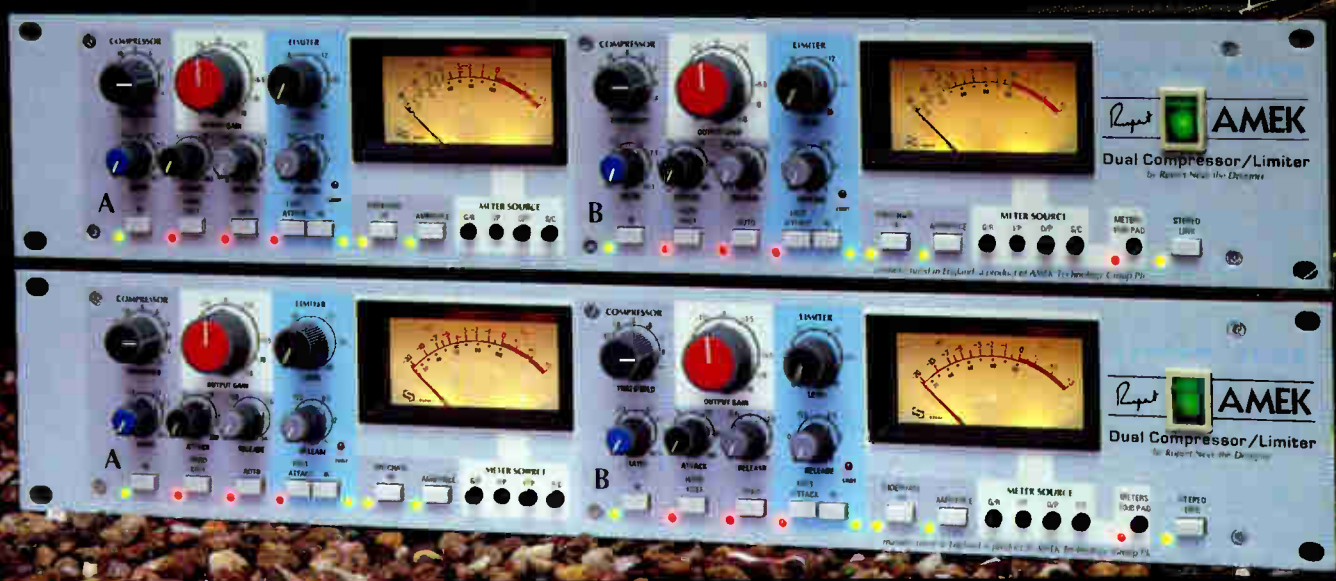
Operating the Ambience switch does not affect signals above the threshold but reduces or mutes signals below the threshold level. The effect is rather like a Gate but is much more subtle. Not only steady background noise but fluctuating ambience and apparent reverberation time can be reduced at will with the Gain control. For example unwanted environmental sound can be re-balanced, or even eliminated, from speech recorded out of doors. The Ambience control will also regulate reverberation - for example, a large reverberant studio can be made to sound like a small speech booth.

The 9098 Compressor-Limiter has a totally analogue signal path which employs transformers at both the input and the output. For the highest possible performance, input and output interfaces must be insensitive to anything other than the signal we want to receive - or there is little point in striving for excellence in the unit itself.

The heart of a Limiter or Compressor is the gain controlling device. The original 2254 used a diode bridge in a classic balanced ring modulator configuration. A very similar technique is used in the 9098 Compressor/Limiter except that semiconductor devices and amplifiers have greatly improved in the last 30 years. For example the original 2254 design had a noise floor of about -55 dBu. Noise performance of the 9098 unit is 35 to 40 dB better.

I believe that the new SYSTEM 9098 Compressor-Limiter continues the rich heritage of earlier designs and its flexibility and extremely high standard of performance will find many satisfied owners in all areas of audio production, whether recording, post-production, mastering or live performance.

Rupert



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Ron Affif Live At Fantasy Studios

by Sarah Jones

PHOTO: STEVE MARUTA

At Fantasy Recording Studios in Berkeley, California: drummer Colin Bailey, bassist Essiet Essiet and guitarist Ron Affif

Jazz guitarist Ron Affif has many fans. *Guitar Player* magazine has raved about his "fertile melodic imagination." The *New York Times* admired his "complete command of the jazz guitar vocabulary." And guitar master George Benson praised Affif's style: "My favorite type of guitar player is one that plays with fire, and the first thing that becomes evident listening to Ron is that he has plenty of that."

The 32-year old guitarist is a Pittsburgh native, but now lives in New York City, where he and his trio play gigs at popular jazz spots like the legendary Village Vanguard and the Zinc Bar. In 1992, Affif was signed to Pablo Records, one of 14 label subsidiaries of Fantasy Records, headquartered in Berkeley, California. (Pablo was originally founded in 1970 by Norman Granz, who started Verve Records. In 1986, the Pablo label was added to the Fantasy roster, which also includes such well-known imprints as Original Jazz Classics, Prestige, Riverside, Milestone and Stax Records.)

For *Ringside*, Affif's fourth album on Pablo, producer Eric

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Michael Cooper, *Electronic Musician*, March 1996

Excerpted from "*Audio-Technica ATH-M40 & ATH-D40*"

"When it comes to performance, both sets of phones produce a smooth but highly detailed sound with excellent stereo imaging and good bass extension... [They] are extremely capable and nice sounding headphones."

Paul White, *Sound On Sound*, August 1995

Excerpted from "*Audio-Technica ATH Studiophones*"

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"The M40s exhibit an accurate blend of LF, mids and HF elements; the bass is tight and well-defined, and the highs have a nice sheen that's crisp rather than brittle. The D40s exhibit similar midrange and HF response, and...have a substantial bass boost in the 80 to 120 Hz range."

George Petersen, *Mix*, May 1996

Excerpted from "*Audio-Technica Studiophones*"

"The D40 and M40 performed well with an excellent, clean and powerful sound, with spacious and detailed stereo imaging...The headphones are rated at a maximum input power of 1,600 mW at 1 kHz, delivering up to a brain-liquidizing SPL of 132 dB."

Christopher Holder, *Audio Media*, January 1996

Excerpted from "*Audio-Technica ATH-M40 & ATH-D40 Studiophones*"

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Miller decided to record the trio—Affif, bassist Essiet Essiet and drummer Colin Bailey—before a small live audience at Fantasy Studios in Berkeley. For the sessions, Studio A was set up like a jazz club, complete with soft lighting, candlelit table settings for 40, and a bartender. An audience was brought in, and two 1½-hour sets were recorded each night over three nights in February (including a special Valentine's Day show). There's a bit of historic significance in the project: The last time Studio A was used for a live-concert jazz session was in 1973, when Cannonball Adderley recorded the Fantasy release *Inside Straight*.

The sessions were recorded by engineer David Luke and assistant engineer Richard Duarte. Affif plays a Buscarino Monarch guitar into a Polytone Mini Brute II; he was miked with an M269 and a KM84; and four U87s picked up the audience. For Colin Bailey's DW drum kit, "we had a pretty straightforward mic set-up," Luke says. The kick was miked with AKGs: a D-112 in front, and a 414 TLII in back; an SM57 was used on the top of the snare; An AKG 452 was used on the hi-hat, KM84s on toms, and overheads were KM54s with gold capsules. Essiet Essiet used two pickups on his bass, a Barcus-Berry and a Polytone. These were sent through Demeter tube DIs into a single Polytone Mini Brute with a 15-inch speaker amp, miked with a U67; in addition, the bass amp was miked with a U47; the bass sound on the album is mostly the tube mics, with some of the DI sound blended in.

Everything was recorded on Studer A800s, "There's a Mitsubishi digital multitrack here, but I was perfectly happy recording to Dolby SR," Luke says. "We had two multitracks, each rolling until it was two-thirds of the way through, to make sure nothing was missed."

Mixing took three days, and was done on an SSL 4056 E/G. As with most jazz recordings, minimal effects processing was used, mostly compression and reverb, plus some slight Pultec and Manley tube EQ. Luke says that for his guitar sound, Affif "likes it to be big and fat, and with a fair amount of reverb. Some jazz people don't like that much reverb, but Ron likes it." A plate reverb effect was added to Affif's guitar, in combination with live chamber reverb. (Fantasy is one of those rare facilities that still has reverb chambers: "It's the kind of thing where, if you don't have it already, you're not going to build one," jokes Luke.) On drums, a combination of AMS and Lexicon 480 reverbs were added.

Luke says recording a live concert in the studio offered the best of both worlds: There's the element of excitement that comes with being involved in a live performance, as well as the comfort of having consistency in the recording environment. "Being in the studio, in front of a live audience is a lot better for us, because there's none of those unpredictables that you have when you're doing a real remote recording," explains Luke, who has been recording at Fantasy for ten years and is also a veteran of the Bay Area remote recording scene. "All of that pressure that you have when recording in a remote truck was gone. We were in a place where we do most of our work, in a room I'm totally comfortable with. I have all my favorite gear, everything I knew like the back of my hand. I was not worried in the least." Judging by the success of the project, this just may be the start of a new trend of live concert sessions at Fantasy. ■

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—FROM PAGE 40, ANDY NARELL

pressive credentials: D'Rivera has played with McCoy Tyner, Dizzy Gillespie, Toots Thielmans, Lalo Schiffrin, Stanley Turrentine, Lionel Hampton, Tito Puente, Carmen McRae among many others, as well as performing with the London Philharmonic and the Cuban National Symphony Orchestra. Samuels was a founding member of Spyro Gyra and has also appeared on records by Chet Baker, Stan Getz, Frank Zappa, Bruce Hornsby and Pink Floyd. Andy Narell's amazing command of the steel drums has been amply demonstrated on six albums he has made for the Windham Hill label, all of them worth checking out.

The Caribbean Jazz Project has recorded two albums for the Heads Up Entertainment label, the most recent being *Island Stories*. Narell, who co-produced the album with D'Rivera and Samuels, shared some details about the dynamics of recording an ensemble that is so rich in percussive elements.

"We rehearsed the music a few days and then did a six-night run in New York at the Blue Note," Narell says. "We then went directly to the studio and did the album in about three days at Jay Beckenstein's studio, called Beartracks, in Suffern, New York. It's a beautiful studio in an old stone house, and a lot of people record there.

"There's one large main room with very high ceilings, where we put the piano and blanketed it in. I was out there wide open in the room, too. The electric bass was run direct. For Paquito's horns, we built a little 'house' in the studio, with real tall gobos and one that comes down from the ceiling that created a roof. We put Dave Samuels in the iso room, next to the control room, and placed the drums in a space above the control room. There was a lot of eye contact.

"Recording Dave Samuels' marimbas and vibes is real critical," Narell continues. "Dave uses this huge concert Rosewood marimba. You practically have to walk from one end to the other, just to play it. To get a really nice sound that captures what's going on in the room, and to get a nice stereo image, I found that the smaller diaphragm mics have what I'm looking for, like the Schoeps, B&Ks and the KM84s. I have my own pair of KM64s for my pans [steel drums]. It's a modified KM54 mic, with the same tube, but the capsule is like that of a KM84, and it has a pad. After some research, I realized that was the mic that sounded best on my instruments.

"Steel pans are like an orchestral thing where you have different ranges, just like with strings—violin, viola, cello. My normal setup is to have three pans on the gig, which would be one solo soprano instrument, and a double alto sax range instrument, which is called the double second. This time out, I had larger than my usual setup, with two more drums that gave me more low end extending down into the baritone range.

"For the double second, I used the KM64s. I used a 451 on the soprano, and we put a pair of KM84s on the lower two pans. When I played the soprano instrument, which used the 451, I found that I liked the sound much better if I left the other mics on. The room sound I was getting off of those KM64s was so beautiful that it just warmed up everything.

"We used a 251 on Paquito's clarinet, and a TLM-170 on his alto sax. I like the sound of a little compression on the bass going to tape, so we used a [UREI] 1176 for the bass. On everything else, I felt that we could wait and use the digital compressors, which worked just fine. The digital compressors sounded really great on marimba, vibes and horns. We

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tended to stay away from it on piano and drums. We might have touched it a little on the steel pans and congas.

"These instruments are a pain in the butt to record," Narell says with a laugh. "It's a real fine line between trying to get control of the sound and over-compressing, or just letting it all go and having all kinds of balance and level problems that may cause you to drop the whole level of the recording, because you can't get an instrument under control, because it has such dynamics. So a lot of the time, I would compress a little bit less, and spend the time riding tracks, to keep the things together.

"Basically, this was seven people playing live, which was the concept of this record. There are very few overdubs or fixes on this record. Doug Oberkircher engineered the tracks. The whole project went down really smoothly. Dave and Paquito came out here to help with the mixes out at my place, which was tuned by Bob Hodas. I mixed through my Genelec 1031s. I have a Yamaha 02R console, which has really powerful and easy-to-learn automation. I've also been really surprised at how good the compressors are on the 02R. I have yet to go, 'Boy, I wish we had a GML or Focusrite.' As far as I'm concerned, there is nothing not to like about it. It sounds great." ■

—FROM PAGE 38, CHARLIE HADEN

While Haden has made his biggest mark as a jazz bassist, his range of recording credits extends to artists like Rickie Lee Jones, James Cotton, Ginger Baker and Beck. You could say that Haden's musical ecumenicalism reflects his ongoing passion for human rights issues, which in turn has found focus in projects like the acclaimed late-'60s ensemble, the Liberation Music Orchestra. Art and life have been seamlessly intertwined throughout Haden's career. One of Haden's most recent projects is *Beyond The Missouri Sky*, a dialogue between Haden and Pat Metheny that evokes the expanse of the American Heartland. As of this writing, the album was Number One on the *Billboard* jazz chart.

Ten years ago, at the urging of his wife and co-producer Ruth, Haden formed Quartet West. The intent was to provide Haden with a hometown, L.A.-based band when he wasn't on the road doing other projects. Besides Haden, the Quartet features the considerable talents of Ernie Watts (tenor saxophone), Alan Broadbent (piano) and Larance Marable (drums). Since its inception ten years ago, Quartet West has garnered an amazing array of accolades, including five Grammy nominations—two of those for the quartet's most recent endeavor, the evocative *Now Is The Hour*.

While the album offers a blend of exquisite original jazz and some film soundtrack gems of the '40s and '50s, the Quartet's interpretive readings are very much in the present. In addition to the Quartet's outstanding work, *Now Is The Hour* also features some fine orchestral arrangements by Alan Broadbent.

"We recorded *Now Is The Hour* simultaneously with a chamber orchestra, and the entire recording took place over three days," says Haden. "We recorded in Paris at Studios Guillaume Tell. All the musicians were French string players, and Jay Newland came over to Paris to engineer the project. We had used strings on *Always Say Goodbye*, which was the album before

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Now Is The Hour: I really loved the way the strings sounded with the quartet, so Ruth [Haden] and I decided, when we made *Now Is The Hour*, that we would use strings for most of the record."

Charlie and Ruth sought a sound where the strings would be more deeply integrated into the music, rather then merely serving as coloring. "The orchestra is woven so integrally with the quartet that it's almost like a fifth instrument," Ruth Haden says. "We discussed our desire for this orchestral effect with our engineer, Jay, and he did a great job of capturing that." The album was mixed at Conway Recording in Los Angeles.

Newland, whose credits include Grammy-winning releases by Etta James and James Cotton, as well as artists like Koko Taylor, Gatemouth Brown, Cecil Taylor and Sun Ra, shared his insights on the making of *Now Is The Hour*: "We must have had 12 channels of the main ingredients, like Charlie, bypassing the SSL, which wouldn't have been my first choice of board to record this kind of music. We went directly into the Sony 3348. I brought in some Neve and Millennia Media preamps for the project.

"There are three elements I employ when I'm recording Charlie. We use the RCA 44 down around the bridge, about four to six inches away. The second mic is a [Neumann] 87 somewhere up on the top curve of the wood, a little above the F holes. There you're basically getting a wood and strings sound. I place that mic six to eight inches away from there. The third element is Charlie's DI. It varies from song to song. If Charlie is playing something really up tempo, and the band is really kicking, then I might bring in more of the DI and the 87. Like the DI, the 87 also provides some of the point to the attack. The RCA 44 is strictly the air. That 'air,' or depth to the sound, is what I think he felt he wasn't getting before. Walter Sear [of New York's Sear Sound] is the guy who turned me on to using the ribbon mics on the bass. The ribbons are so responsive to the string transients. The 44 clicks really well with Charlie. He would say, 'I've never had my bass sound like this. Finally, someone has gotten my bass sound.'

"Charlie always needs to be in a booth, no matter what because his ears are extremely sensitive. We put the drums in another booth that had a kind of alcove in it, which was kind of dead-sounding. Ernie, our tenor sax player, was placed right next to the drums. Then the piano and the 30 strings were in the main room together.

"For the strings, I would put the warmest sounding condenser mic over groups of four strings, maybe ten feet up. I used a bunch of Neumanns—87s and some 67s. I had some Sennheiser MKH-40s and 20s, which are really nice mics, especially for strings. With the cellos, we were basically putting two on one mic, like a FET-47.

"It was really great to hear Charlie in this context. To hear him play certain melodies, the way he goes up the neck of the bass with this group of string players is amazing. As a producer, Ruth has got a very good sense of what is happening, and how Charlie fits into that picture. She hears what is going on, and if it doesn't feel right to her, then maybe we should try one more take. She keeps everyone from getting too analytical or technical. After all, this is supposed to be about feeling."

We'll give the last word to Charlie Haden: "Each musician in the Quartet is a great improviser, and really places importance on improvisation and playing music that has never been played before. I always seek out musicians that feel that same way about music as I do. Ornette and I used to talk about playing music like you had never heard it before, and you're playing it for the first time. I think all of the musicians that make an impact on the art form approach music by trying to create something that has never been before. That is the way the guys in the Quartet approach music." ■

—FROM PAGE 38, JAZZ PASSENGERS

in Sonalyst Studios, Connecticut, which is one of Ferla's two favorite facilities. "Sonalyst is an exact replica of Power Station Studio A [now Avatar Studios], except, instead of the vintage Neve board that the Power Station had in the city, they put in a Neve VR," says Ferla.

"The main room has a vaulted 35-foot ceiling, and there are isolation rooms. I don't want to call them booths, because they are actually large rooms with a sound, and one of them has a little cathedral ceiling. And then there's a vocal booth on the side and another booth behind. There are sliding glass doors between each space, so that you can enclose each room. I'm not going to tell you that there's 100 percent isolation, but it's pretty good. You'll have the isolation in the mix to be able to EQ an instrument without affecting the sound of another."

The layout at Sonalyst helped Ferla immeasurably with the Jazz Passengers.

process; I wanted him to feel like he could just play and not think about the microphone."

For Deborah Harry's voice, Ferla used an AKG C-12 mic. "It's a great vintage tube mic that sounded nice and rich on her," he says. "I like to do it with the microphone—choose the mic and place it, and if the sound isn't right, change the position of the mic or replace it. That's what I'll always do before I put an equalizer on. I try to go for a big sound, a lushness and warmth and natural timbre to the sound of each instrument."

The one part of the production that Ferla did not record was vocals on two songs that feature Elvis Costello. He sings one of his own compositions, the swinging "Aubergine," and a comic, sexy duet with Deborah Harry called "Doncha Go Way Mad." Those vocals were recorded later at Electric Lady Studios by engineer Jay Militscher when Costello was in New York while on tour with The Attractions. (Ferla was in New York, but busy in another room at Electric Lady recording David Sanborn.)

"This is an absolute credit to [Costello's] work ethic, professionalism and brilliance as an artist," Joel Dorn says. "We did his vocal on 'Aubergine' and the duet with Debbie in maybe three hours. That was all the time he had. The one day he was supposed to have off he'd ended up doing a special for VH1. He was exhausted from the tour, exhausted from a 15-hour taping, and he was a little rough at first, but then he just knocked it out. Boy, is he a pro."

"He's also the only human I've ever seen short out an 87 with his spit," laughs Adam Dorn. "He warned us. He has a gap in his teeth, and he said, 'You know, I've got this problem,' and I said, 'Yeah, yeah, yeah,' and the next thing, *eeeerhh*."

"It was great working with him and Debbie," Joel Dorn says. "The whole thing was just fun. Years ago, when I would record friends like Roland Kirk or Les McCann or Fathead [Newman], the dates were always fun. But that time's kind of been over for me because I've been doing mostly boxed sets and reissues. This reminded me of when I was really in the middle of it in the '60s and '70s, when I was producing 20 or 25 albums a year. And I hope people get the feeling off this record that the musicians put into it. It's one of those records that's different but pleasant; it's different in an appealing way. These people have such a command of what they do, and if that comes across, we're happy." ■

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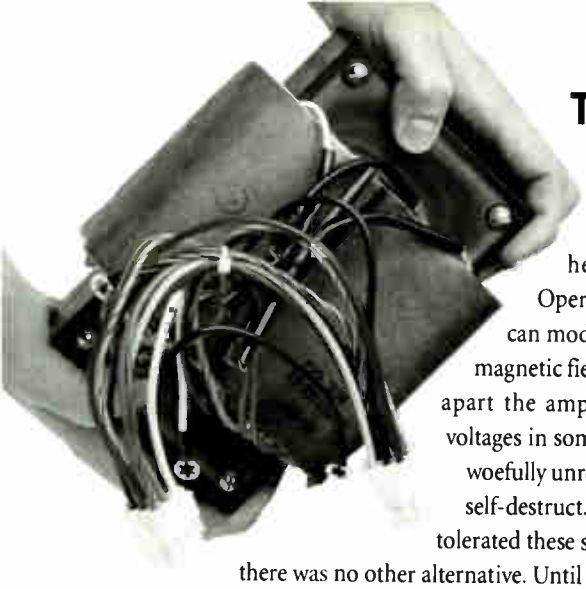

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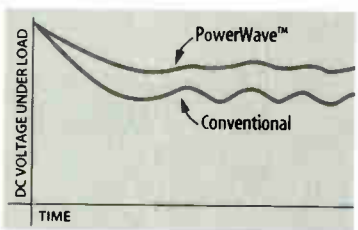

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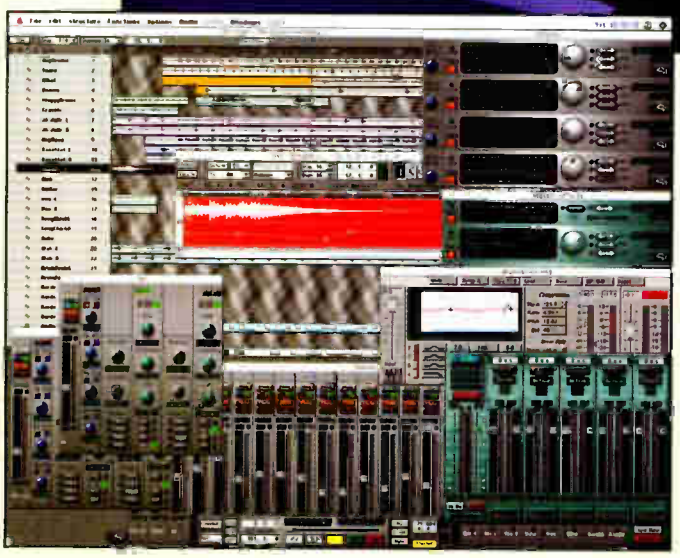

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HIGHLIGHTS

Willkommen zu München!

OF THE 102ND AES CONVENTION

BY GEORGE PETERSEN

It's been 25 years since AES went to Munich. Times and technologies have changed, and the 8,500 audio professionals attending the 102nd convention of the Audio Engineering Society—held from March 22-25, 1997—were served a delightful assortment of new products and technologies. Overall, the convention was a success on every level: The MOC Center proved to be a viable venue, if a bit far from the hotels; the shuttle buses ran with unerring German precision; convention chairman Günther Thiele and his colleagues assembled an excellent array of tours, papers and technical sessions; and even the normally harsh Bavarian weather cooperated, with the snowfall ending the day before the show opened.

EINE KLEINE KNACKWURST MUSIK?

A highlight of the 102nd convention was the AES banquet, held in Munich's famous *Löwenbräukeller.* For a paltry 80 DM—about $50—900 revelers were treated to a huge buffet of Bavarian specialties and entertainment consisting of a world-class yodeler, two traditional German bands and an overhead demonstration of some rather interesting and quite novel acoustical impulse generators. By the way, the admission also included nonstop steins of Löwenbräu's local "Triumphator" brew. No one left early.

But for those who could still walk the next day, there was plenty of action at the show, where 315 exhibitors were showing the latest *Errungenschaften der Tontechnik.* Here are a few items that caught my eye.

NEW ADAT ON THE BLOCK

Alesis (Los Angeles) and **Studer** (U.S. offices in Nashville) announced an alliance for the development of ADAT Type II, a 20-bit recording system based on the S-VHS ADAT format. (For more details, see the Technology Spotlight in last month's *Mix.*) Type II provides 20-bit linear recording, as well as the ability to switch the new machines to 16-bit operation. This feature provides for full backward compatibility for the recording and/or playback of tapes made on the 100,000 (or so) machines using the original 16-bit ADAT format. The 20-bit tapes will not be playable on the Type I ADAT decks, but up to 16 ADAT decks (of any vintage) can be interlocked in sample-accurate sync. Slated for release this fall, the first two Type II recorders will be the Alesis Meridian ($7,000) and the Studer V-Eight (priced about 10% higher).

Both machines feature the Matsushita IQ transport used in Panasonic's high-end video-editing systems, and they operate twice as fast as the Alesis XT. Dual direct-drive motors under servo control move the tape efficiently, and this design eliminates the idler wheel, so tape handling is gentler. The new format includes a dedicated timecode track, as well as an analog aux track for cueing or other purposes. SMPTE timecode chase lock sync and MIDI Machine Control are built-in. Analog interfacing is via XLRs or 56-pin EDACs, and ADAT lightpipe digital in/out ports are standard—8-channel AES I/O is optional. As the decks essentially incorporate all of the BRC's features, a new autolocator/remote will be offered.

DIGITAL CONSOLES AND MORE

After several years of development, **Solid State Logic** (Oxford, UK) finally unveiled Altimix, its high-performance, total system solution for audio post-production. Combining SSL's DiskTrack and Hub Router networking technology with new high-speed proprietary digital processing, Altimix has an intuitive, assignable control surface providing advanced audio editing with integrated video and audio mixing tools.

Altimix offers instant access to stored audio and video though a shared multi-disk array. A nonlinear digital video recorder features graphical clip-based editing techniques with access to four selectable playback channels, and variable video record resolution from 50:1 squeeze to broadcast-compatible 4:1. Altimix handles up to 48-track recording and editing (expandable to 128 channels of disk recording) with 50 levels of undo and real-time clip auditioning. The automated 48-channel console has 24 assignable moving faders, 4-band EQ

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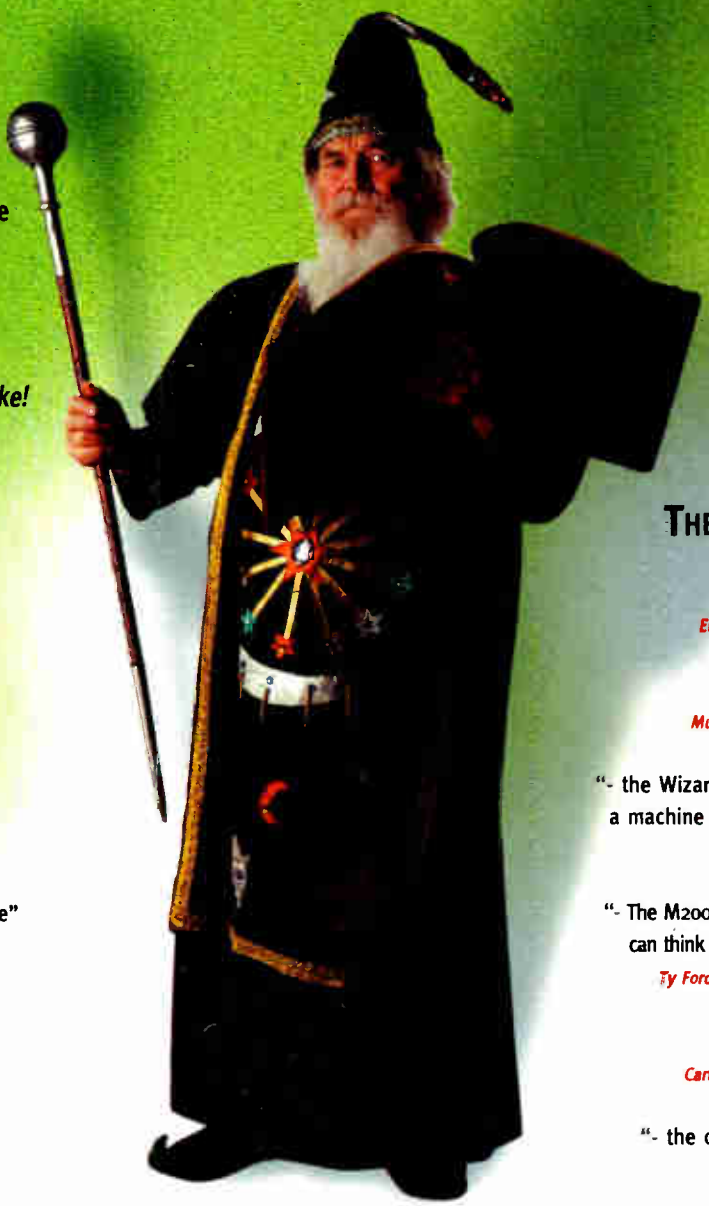

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Ty Ford, Pro Audio Review, February 1997

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Fritz Fey, StudioMagazin, Oktober 1996

THE WIZARD M2000:

Editor's Choice 1997
Electronic Musician, January 1997

Editor's Pick 1996
Musician Magazine, December 1996

"- the Wizard stands up to the comparison with a machine costing more than twice as much"
Mark Frink, MIX, October 1996

"- The M2000 will put you just about any place you can think of, and a few you probably haven't"
Ty Ford, Pro Audio Review, July/August 1996

"TC scores big again!"
Carl Coryat, Bass Player, August 1996

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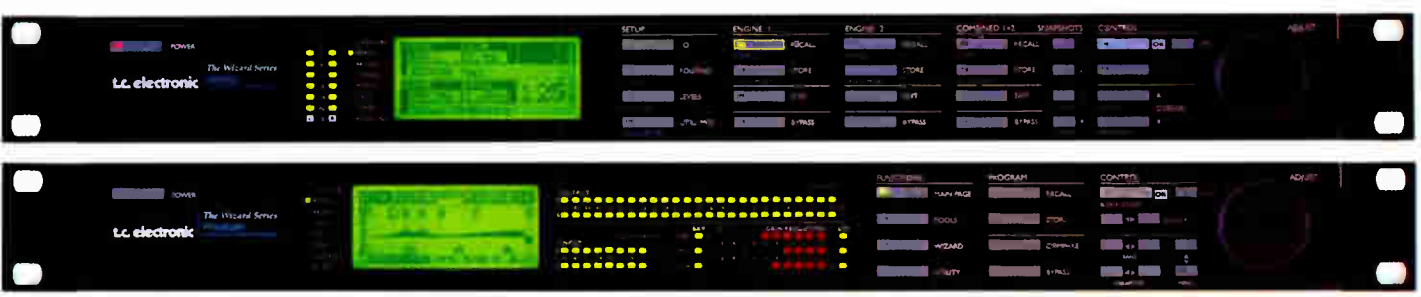

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Amek (North Hollywood, Calif.) demonstrated the versatility of its DMS (Digital Media System) by showing a large-format version of the console with sidecar bays of additional faders and controls that approximated the number of available signal paths. DMS is designed to remove the fixed relationship between the console architecture and the console worksurface. Taking this flexibility one step further, the DMS on the show floor also incorporated a **DAR** workstation into its console surface.

Soundtracs distributed by Korg, USA (U.S. offices in Melville, N.Y.) kicked off its 25th year with the showing of a prototype of its Digital Production Console—DPCII—designed for applications in film, audio dubbing, post and music production. Developed from the technologies used in its Virtua console, DPCII has two components: a modular work surface and a dedicated rack for the analog and digital electronics. Two available work surface frame sizes provide 64 or 96 100mm moving faders, with each block of 16 channels having a touch-sensitive color LCD.

DPCII is essentially laid out in an in-line format with up to 128 inputs, each with 4-band fully parametric EQ, compressor/ducker/gate, 16 aux sends (or up to 40 depending on group buses) and a joystick in each block for LCRS and LCRSSB panning. A transport control section offers control recorders via MMC and Sony RS422 protocols, and during tracking the record buttons in the channels can be used to control a multitrack's record-ready status. Dither is selectable individually for different bused outputs and stems (and globally for directs), to 16, 18, 20 or 24 bits. Both dynamic and snapshot automation are standard. Initial deliveries are slated for this fall.

In other Soundtracs news, the company announced that shipments and orders received to date for its affordable Virtua digital console have now reached 114 units.

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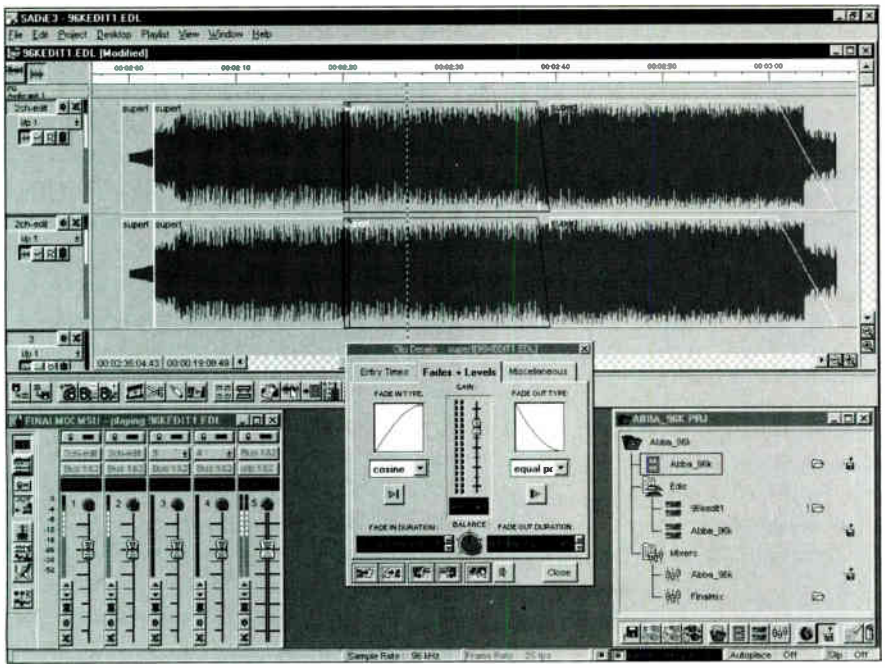

The SADiE3 96 kHz digital editing system from Studio Audio & Video Ltd.

there were other possibilities. Italian company **SoundLab** (www.vol.it/explorer/soundlab) debuted at AES with a bevy of interesting digital products. Mixtral is an automated 8x8 digital mini-console with a footprint barely larger than a mousepad. But more than just a mixer, Mixtral offers programmable on-board reverb, 3-band EQ and dynamics, along with full MIDI automation. More interesting perhaps, is a rackmount version of Mixtral with a Windows software front end. SoundLab also showed the ProMix 01 DigiKit, a bolt-on accessory that brings Yamaha 02R-compatible I/O card slots to the ProMix 01, which adds 16 digital I/Os in ADAT, T-DIF or AES/EBU protocols, along with word clock and 44.1/48kHz operation. It seems pretty amazing, but so far no word on pricing, deliveries or availability in the U.S. market. We'll keep you posted...

Also in the "very-cool-but-when-is-it-coming-stateside" category is the Sensory console and Muxipaire digital routing/transmission system from **Innovason** (Ploeren, France). Designed for live sound events—sports, TV, broadcasting, sound reinforcement (FOH and monitors) and theater sound—Sensory is a digitally controlled digital console, where all the audio and control electronics remain in racks that communicate with the mix controller via a single coaxial cable. The system has up to ten 20-channel fader panels that communicate with a PC that provides screen redraws of routings, EQ curves, dynamics, moving fader automation and metering. The individual fader panels are lightweight and link together, allowing one person to unload and set up a large-frame console.

Ready to go 96kHz/24-bit? The SADiE3 digital editing system from **Studio Audio & Video Ltd.** (U.S. offices in Nashville) now includes Data Conversion System's 902 and 952 96kHz 24-bit converters. The reference-quality ADCs and DACs use a proprietary, multibit oversampling technique for outstanding low-differential nonlinearity. Designed for high-speed operation, the units are said to overcome limitations of the 44.1kHz sampling rate and 16-bit resolution.

Lexicon (Waltham, Mass.) and software developer **Steinberg** (Chatsworth, Calif.) announced Lexicon's support of Steinberg's Cubase VST™ software with its recently introduced Lexicon Studio™ System (LSS), a line of high-performance hardware components for computer-based audio production systems. Steinberg's Cubase VST provides MIDI and audio recording/editing, and plug-in support for popular host based packages such as Waves™ Native Power Pack, Arboretum's Hyperprism and Steinberg's own Spectral Design plug-ins. Steinberg also unveiled Cubase VST 3.5 for Windows 95 and Cubase VST for Power Mac, which in addition to LSS, also support the Korg 1212, Digidesign Audiomedia III, Lucid Technology PCI24 and Event Electronics' Layla and Darla cards.

The Lexicon Studio System is a hardware/software-based system offering I/O options, DSP, signal routing, synchronization and control hardware for leading industry software packages based on PC or Macintosh computer audio production systems. LSS uses the proprietary LexiPowerCore technology and will interface to tape-based systems (including ADAT and Tascam DA-88/DA-38), allowing editing, processing and tape-based material.

Core-32™, the technology center of LSS, is capable of supporting 44 simultaneous input/output sources from as many as two Lexicon LDI-16S 16-channel I/O racks and one LDI-12T (analog and ADAT) interface. These can be connected to the 32 voices by the internal router and can accommodate hardware additions to the Lexicon system in the future. A 24-bit multichannel digital signal bus can communicate with other Lexicon cards to expand system processing power. LSS also has a PC-90 daughterboard, which provides the DSP power of Lexicon's PCM 90 digital reverb with 100 new presets created specifically for the PC-90 and software control for easy program selection and adjustment. LSS is due to ship in August. Pricing for a typical system will be around $3,000, less computer.

HHB (U.S. offices are in Portland, Maine) previewed its CDR800, a stand-alone (no computer required) audio CD recorder. No more difficult to use than a DAT machine, the CDR800 features balanced XLR inputs, RCA inputs/outputs, S/PDIF and AES/EBU digital I/O, a built-in sample rate converter and an indexer that converts DAT IDs to CD tracks. The first shipments arrive this fall, but what makes the CDR800 really special is its groundbreaking under-$2,000 price.

HHB CDR800 CD Recorder

Housed in an unassuming one-rack-space chassis, the Digital Filter Processor e07 from **Jünger Audio** (distributed by GPrime of NYC) takes a radical approach to digital equalization. The 24-bit unit takes a 44.1/48kHz input signal (AES or S/PDIF) and doubles its sampling rate to 88.2/96kHz. All processing then takes place at the high sampling rate, and the result is then downsampled back to the original rate, so any nonlinearities in amplitude or phase occur well before the cutoff frequency. At the show I was only able to demo the unit using headphones, but the difference was startling, providing equalization that was smooth, musical and about as close to flawless as I've heard in any digital equalizer.

But AES wasn't all digital. After an absence of too many years, **AMS Neve** (U.S. offices in NYC) has reintroduced the classic Neve 1081 microphone/line amplifier/equalizer. Unlike other product reissues, which bear little similarity to the original, Neve spent six months sourcing original components, and the new units are built to the original 1081 specs, including input and output transformers. New York's Right Track Recording has ordered 48 1081s for use with its recently installed 96-input AMS Neve VX console, using the Direct to Fader facility on each input module to select the outboard 1081s as an alternative source.

MIKROPHONEN, BITTE

You can never own too many microphones, and EuroAES has always been fertile hunting ground for new possibilities. The most talked-about mic at the show was the **MicroTech Gefell** (distributed in the U.S. by GPrime of NYC) UM900, a tube condenser microphone that requires no power supply, running on standard phantom power! This method has been tried in the past without success due to the high current demands of filament and plate voltages, but by using an (unspecified) miniature tube, MT Gefell says it's possible. However, if this mic sounds half as good as it looks, other 48 VDC tube mics will surely follow. The UM900 features the large-diaphragm capsule, five polar patterns (omni, cardioid, wide cardioid, hypercardioid and figure-8), a satin or black-nickel finish and a clever rotational stand mount. Current pricing is estimated at 4,000 DM (about $2,500), and fall deliveries are expected. In other MT Gefell news, its UMT 800 transformerless, 5-pattern studio condenser is now shipping.

Also due soon in the states is the Brauner VM1 from Germany's **Dirk Brauner Röhrengerätemanufaktur** (www.dirk-brauner.com). The VM1 is a hand-made, large-diaphragm tube microphone combining a gold-plated, large-diaphragm capsule with an original Telefunken AC 701k, specially selected tube. The outboard power supply has a continuously-variable control for any polar pattern, ranging from omni through cardioid to figure-8. The construction quality seems first-rate, and the claimed specs include a 40 to 20k Hz (-3 dB) frequency response and maximum SPL of 136 dB. A stereo tube mic is also available.

Schoeps (distributed by Posthorn Recordings, NYC) unveiled its CMXY 4V, a new X-Y stereo microphone consisting of two closely spaced cardioid condenser capsules that can be rotated or tilted into any desired angle. The CMXY 4V is designed for TV and broadcast applications, boom miking or stand-mounted spot miking, but it seems like a natural for drum overheads or stereo audience miking.

Another mic with obvious uses in unintended applications is **Audio Technica**'s (Stow, Ohio) AT854R. Also known as the "Quad Microphone," the AT854R is a low-profile boundary design with four cardioid condenser capsules, designed for conference applications. But by manipulating each of the mic elements separately, the mic should offer all sorts of multichannel panning and surround sound tricks in the studio or onstage.

I should mention that the AES awarded citations to **Laurel Cash-Jones** for her work in developing AES educational activities and to **Elmar Leal** for his efforts in expanding AES activities into the Spanish and Portuguese areas of the world. Both of these people truly deserve our recognition and thanks. Congratulations!

All in all, the 102nd AES was a resounding success. This show is going to be a hard act to follow when the 103rd convention rolls in New York this fall (September 26-29, 1997). And those of you into long-term planning should circle May 16-19, 1998, when AES returns to Amsterdam, Europe's fun town. Start shining up those wooden shoes now! ■

Mix editor George Petersen lives with his wife and too many musical instruments in a 112-year-old Victorian house on an island in San Francisco Bay.

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Quality CONTROL

Or, Do You Know How Your Record Sounds?

BY DAN DALEY

Listened to your albums lately? Cheryl Engels has, and nearly half the time she doesn't like what she hears. Just before U2's 1997 release *Pop* came out, she checked the production master version (pre-replication) for a major North American territory and found that the left and right channels had been reversed. "I've gotten test cassettes where there was nothing—nothing—above 5 kHz; CDs where everything was fine for the first three seconds, then you get huge electrical noises; cassettes with a high-frequency tone recorded throughout the entire program," she says, rifling off just a few of the problems that recordings can fall prey to between leaving the mastering facility and hitting the racks at Tower Records. Engels finds problems significant enough to halt replication, duplication and release in as much as 30% of the projects she reviews. "Not just in smaller territories with sometimes questionable replication facilities, but in major territories, too," she adds. "You'd be amazed at what gets out there."

Left (L to R): Cheryl Engels, Bono and the Edge at A&M Mastering Studios during the mastering of U2's* Achtung Baby *in 1991.

In the increasingly corporate record industry, Engels has not always endeared herself to the labels, particularly when she spots a problem that results in a delayed release date. But clients love her, and the clout of the artists she works for—including U2 (*Rattle & Hum*, *Achtung Baby*, *Zooropa* and *Pop*), Melissa Etheridge (*Your Little Secret*), Brian Eno (*The Passengers*, with U2), Sting (*Mercury Rising*), the Bee Gees (*Still Waters*), and the soundtracks for *In the Name of the Father* and *Mission Impossible*—generally ensures that, even if the labels don't like what she has to say, they accept it.

What Engels does is quality control and quality assurance. This work used to be handled by departments within the labels; she worked in one of them, at A&M Records, from 1974 to 1993. But then PolyGram, which had acquired A&M several years earlier, terminated the entire department. Meanwhile, the rapid proliferation of independent labels has made it difficult for quality control to take root: Masters are rushed to P.O. boxes of replication brokers for a CD industry that has seen the cost of a replicated, packaged CD drop from more than a dollar four years ago to less than 50 cents today.

"We were quite fortunate that one of the owners of A&M was an artist—Herb Alpert—for whom the integrity of the artist was a concern," Engels says. "Herb's mandate was: If it's not correct and not what the artist wanted, the release was stopped until any problem was corrected. That was the environment and culture we worked in." Engels' department was housed at A&M Studios, so she worked closely with the mastering side as well as with A&R and the artists.

Engels was approached by U2 in 1988, when the band was recording *Rattle & Hum* at A&M for Island Records. The band's curiosity was piqued by the function of her department. "Artists were always coming in and seeing what we were doing—checking masters and requesting test pressings, cassettes and CDs from every territory before release," she says. "And then they wondered why their labels didn't have the same procedures and weren't willing to delay a release until everything was corrected." Because U2 was using A&M's studios and mastering facilities, the label agreed to provide the band with Engel's QC services, as well.

GOING SOLO

After the department was terminated, Engels started Partial Productions, a one-woman freelance version of that same QC concept. She immediately picked up work from U2, as well as other artists of that stature. "The problems were based largely on digital in the sense that the master would come from the mastering house to the record label," she explains. "They would then have copies made in any number of places under any number of quality conditions, send those copies

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to their regional and overseas offices, which would then make more copies to send to the replication and duplication houses. There were a lot of points at which problems of quality could occur. More so than years before, when it was just vinyl."

Mastering engineer Glenn Meadows of Masterfonics in Nashville, who has never worked with Engels, concurs. "Years ago, the record labels used to have a more direct connection with mastering houses and pressing plants," he explains. "There would always be test pressings before mass pressing would be allowed to begin. You don't see nearly as much of that anymore."

THE PROCESS

Mix encountered Engels on a recent visit to Middle Ear, the Bee Gees' semi-private studio in Miami. She was recommended to studio manager John Merchant by producer Hugh Padgham just before the initial UK release of the Bee Gees' first major production in years, *Still Waters*. "We had never heard of this sort of thing before," recalls Merchant. "It used to be the record companies' job, and everyone assumed it still was. The problem was that, in the age of digital and mass manufacture of CDs, the record companies started believing that they didn't need quality control, that it was all a matter of clones and ones and zeros. But man, that really made Bob Ludwig's famous quote—'Never turn your back on digital'—turn out to be incredibly true. There are so many subtle but dramatic ways that digital can go wrong. But the labels' perception was that, 'Hey, it's digital. Everything's a perfect copy.' The labels just stopped checking, and quality has really fallen off."

Engels was retained to perform quality control on the Bee Gees' album, first single and video, and the project is a good example of Partial Productions' process. First, Engels—who says she has never had any formal engineering training but learned the processes involved in mastering, premastering, duplication and replication in her 19 years at A&M—requests a list of every territory worldwide where the record is slated for release. All orders for masters pass through her, and she arranges to have approved masters sent out to CD and cassette manufacturers directly, making sure that the pyramid of clones does not get out of hand. She then checks with the replication and duplication plants in each region or country, specifying what she considers the proper master format for each consumer format, country and plant. For instance, she says, "Usually labels don't care if they give a plant a DAT or a CD-R; if it's digital and it's music, then it's fine to them. I almost always specify a 1630. In a minor territory, we might send a DAT, but I don't think they're as stable long-term. Also, for manufacture of CDs, I always insist that plants master directly from a 1630 master." She adds that a 1630 master compels CD-manufacturing plants to master in real time; other formats, such as Exabyte or CD-R, enable plants to high-speed master. "We believe one of the culprits in CD quality is data clock jitter, which is believed to be exacerbated by high-speed mastering."

Before authorizing any mass duplication or replication, Engels requests a production copy from the manufacturing plant in each territory, in each for-

NIGHTMARES

Here are some examples of technical nightmares that Cheryl Engels has unearthed in the course of her work:

CASSETTES

- Midway through one side of a cassette, the level suddenly drops 4 dB and stays down for the remainder of the program.
- Nothing on the tape above 5 kHz.
- Azimuth off 6 dB at 10 kHz.
- In one Asian country, an expletive in one of the lyrics was rejected by the country's censors. "The artist asked me to insert a loud 'bleep' noise in place of the expletive," Engels says. "Obviously, he wanted the consumer to know that the lyric had been censored. The record label staff must have decided they didn't care for our 'bleeped' version, as I received their tests to find that in place of the 'bleep' they edited in lyrics from another section of the song. In other words, they changed the line into a completely nonsensical sentence, one that was not approved by the artist."

VINYL

- Most frequent problems: wave noise, stitching (silver marks) that creates a tearing noise, unfill, orange peel, de-horning or excessive polishing, stamper dents or bumps, and off-center discs.
- "I recently received a beautiful test [pressing] on lovely virgin vinyl. When the finished production run arrived, it was pressed on inferior re-grind material. When queried, the plant explained that they only use virgin vinyl for tests because it is too costly to use for commercial production runs. One has to wonder what is the point of evaluating a test if the material does not represent that used for commercial production."

COMPACT DISCS

- 20 very loud electrical glitches in the first track, traceable to a reflectivity problem.
- UV burn-through on a CD causing uncorrectable errors, coupled with a center hole that was well below Red Book minimum.
- Radial noise so high it could not be graphed, 294 uncorrectable errors, and nothing on the CD below 500 Hz.
- Ink used to print the CD label was not dried properly, and the tests arrived still tacky to the touch.
- A production master intended for cassette duplication used for CD replication—the standard 30-second space that would indicate a change of sides for tape was included between tracks 5 and 6 of the CD. "That's a long time on a CD," Engels says.
- CD-Rs used as production quality-control examples, instead of actual production discs that were glass-mastered and molded. "The plant insisted that those CD-Rs were examples of their production," says Engels. "Two weeks of conversations explaining the CD manufacturing process to the record label production department followed. It wasn't until I told the label that it would require 10,000 hours to make 10,000 CD-R discs, at a cost of approximately $200,000 that they understood that these tests were not samples of [the] plant's production."

—Dan Daley

mat. That copy is then subjected to an A/B comparison with the original master and analyzed by one of a group of premastering engineers from various replication plants that Engels uses as consultants (she would not reveal which plants or engineers). Should a problem arise in the first analysis, she will send it to a second engineer for a second opinion. If these production copies pass muster—and as mentioned earlier, it's not unusual for 30% not to make the first pass—she then authorizes mass production, further specifying that CDs be replicated in real time from the authorized production master. "Typically, I reject something every day," she says firmly. "But when I do reject something, it's not done lightly. I know it's going to hold up production and release dates."

In the case of the Bee Gees project, Engels' presence was appreciated by Merchant, the artists, and participating producers Arif Mardin, Russ Titelman, David Foster and Hugh Padgham—and, hopefully, the record label. Among the problems she unearthed, according to Merchant: The UK replicator was using an office-listening CD-R as the master to make the B-side of the first single, and the Japanese firm was about to release what was slated to be the second single as the B-side to the first single, which would have been disastrous to the album's marketing campaign.

"Too many things are going on behind the curtain once the CD leaves the mastering house," Merchant observes. "Too many people are concerned about the cost and not enough about the quality of a finished product. In this case, the Bee Gees' record label was initially reluctant to have [Engels] get involved; they were not excited about having someone look over their shoulder. Cheryl made them do that because the artist demanded it, and now having done it that way, with outside quality control, I would never do without it. And I hope the label feels the same way."

Engels has her share of fans among artists, producers and managers, and even some at a few labels (she gets an album credit on her projects, as well). Maureen Turkel, vice president of production at Island Records in New York, acknowledges Engels' help in project coordination but notes that it has not changed internal label procedure. "The artists pay her salary; she's a luxury that certain artists can afford," says Turkel. "When she's involved, we build in extra time between the mastering and the release date. I've worked with her for a long time, so I know what to expect. But when I'm working with Cheryl, I know that if an order is placed for parts [the label production departments' term for items such as 1630s and CD-Rs], it's going to get done right."

Bill Leopold, manager of Melissa Etheridge, is effusive in praising Engels, but he acknowledges that he had to be convinced by Padgham and Etheridge to spend the additional money to hire Engels. "Hugh and Melissa fought for it, and I got pressure from the record label not to use her. But in the end, I have to say, all we have is our art. And Cheryl makes sure it's still art when it comes out the other end."

Padgham, who worked on Etheridge's and the Bee Gees' recent records, is emphatic on the subject of quality control. He feels, as Merchant does, that the major record labels use digital as an excuse to avoid dealing with quality issues. "I see far more problems with CDs than I ever saw with [vinyl] records," he says. "It's not funny anymore. And the record labels regard you as the enemy when you want to bring Cheryl in, because they don't have the patience to really look at what she's accomplishing for us and for them." Padgham, who notes that he has on more than one occasion shared the cost of bringing Engels onto a project, says that Etheridge's Australian test cassettes were "unplayable" and that Engels' work saved them in that market. "[The test cassettes there] were dreadful," he says. "And that ultimately hurts an artist's sales, which is no good for either the artist or the label."

Engels says she has not had to market Partial Productions; every client she's had has come to her as a referral from another artist or producer. Although she has a schedule of rates for individual aspects of quality control, such as CD analysis, she prefers to bill on a project basis. She says that fees typically rise with each successive project by an artist, generally because they tend to include her in more ways, including project coordination. And in each case, the client—generally, the artist—pays her fee, not the record company. However, her passion for getting it right seems to be at least as strong a motivation as money—she says she takes on a few independent acts each year on a pro bono basis. "If I can introduce the concept to new artists on the way up, it makes everyone's life a lot easier later on," she says. "And it helps make the music sound like it's supposed to sound." ■

Dan Daley is Mix*'s East Coast editor.*

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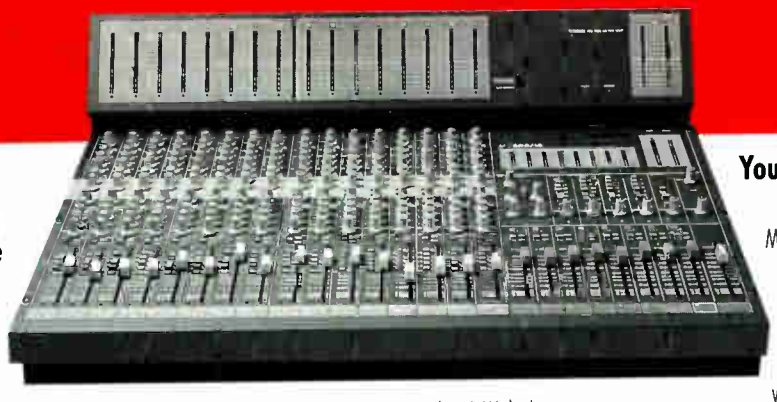

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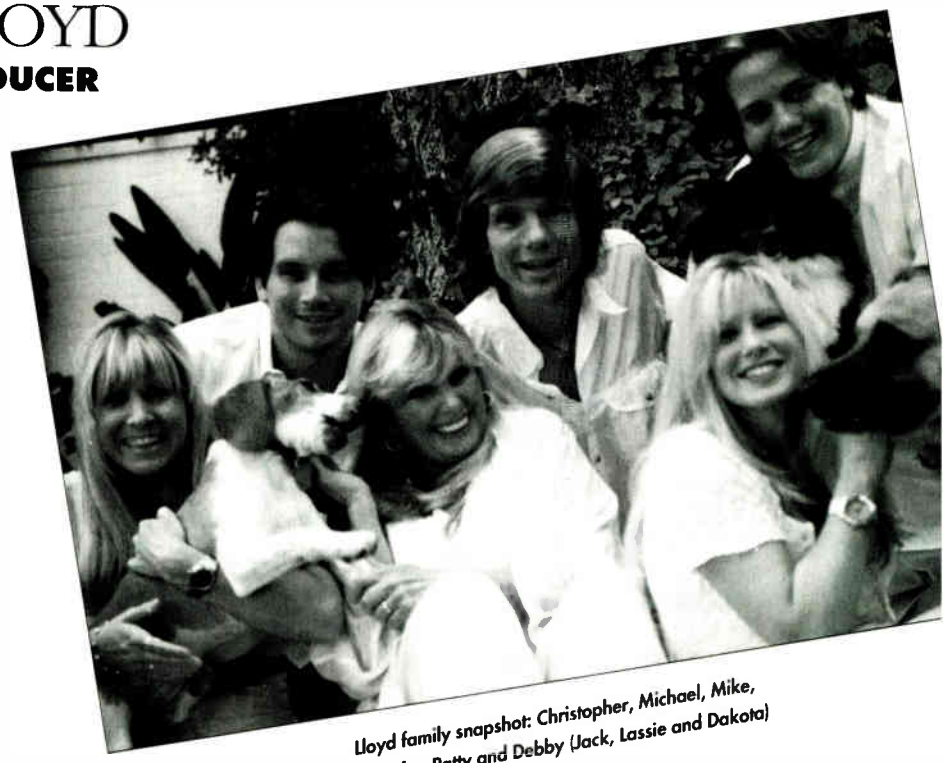
MICHAEL LLOYD

POP GOES THE PRODUCER

Over the course of more than 35 years in the music business, producer/musician Michael Lloyd has been part of more than 100 Gold and Platinum records. If you're not familiar with the name, it's probably because so many of his successes have come with artists who are not cutting-edge critic's darlings. Lloyd has mainly toiled away in relative anonymity with clean-cut, middle-of-the-road pop acts and a handful of teen idols, including Lou Rawls, Barry Manilow, Dionne Warwick, Shaun Cassidy, The Monkees, The Osmonds, Debby Boone, Belinda Carlisle and the Righteous Brothers. Lloyd has also had a long career writing and supervising music for film and TV: Early on, he worked on campy AIP films like *Wild in the Streets, Devil's Eight, The Wild Angels* and *The Trip*, and then he had a stint at MGM, working under his friend Mike Curb on "youth" films like *Zabriskie Point* and *The Strawberry Statement*. In recent years, he's worked as music supervisor on such varied films as *All Dogs Go to Heaven, Major League, Heart Like a Wheel* and the mega-mega hit *Dirty Dancing*. He's also helped with the music on such television series as *Land of the Lost, St. Elsewhere, That's Incredible!* and *Happy Days*.

One of Lloyd's most recent projects has also proven to be one of his most controversial: He co-produced (with Jeffrey Weber) the Pat Boone album of heavy metal songs done big band style, *No More Mr. Nice Guy*. Of course, Pat will *always* be a nice guy, and so will Michael Lloyd, who is as affable as they come in this business. Future projects include *Dirty Dancing 2* (what took the filmmakers so long to figure that out?); production for Dionne Warwick, Benny Mardones, and the L.A. alternative band the Other Half; new music from Lloyd's one-time group, the West Coast Pop Art Experimental Band, and a slew of kid-oriented music productions (one of his main interests). Lloyd may never have the hip cachet of a Daniel Lanois or Don Was, but by any estimation his career has been a tremendous success that shows no signs of slowing down any time soon.



Lloyd family snapshot: Christopher, Michael, Mike, Jennifer, Patty and Debby (Jack, Lassie and Dakota)

I was just checking out the big new Pat Boone CD, and I don't know quite what to say. Uh...great arrangements! But I'm not sure if Pat's the guy to be singing this stuff. What kind of reactions are you getting to that record? I've seen a couple of pit bull-attack reviews.

There have been a few of those. There have been some good ones, too. The reality is that in his early career, Pat was doing songs that would not have been played on so-called white radio. A lot of people then said, "Well, they don't sound like the originals; they don't have that edge." Of course they didn't. But the fact is, those songs got played on the radio where they wouldn't have if it was Little Richard doing "Tutti Frutti" instead of Pat. A lot of people probably didn't like it, but millions of people did, and at the time, it was groundbreaking stuff. It's hard to imagine that now because everything has changed so much.

So the style Pat chose to do the new album in—this big band style—fits in with his image; it fits in with his musical taste and his background. And to me, he pulls off that aspect of it very nicely. He communicates the songs well—this is probably the first time a lot of people are even hearing the lyrics.

How about the camp attitude, though—the leather jacket and fake tatoos? Doesn't that cheapen it somewhat?

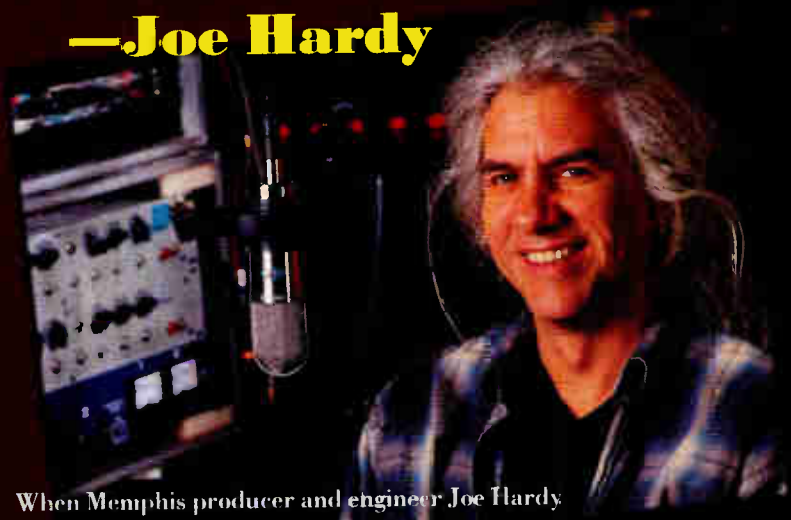
The camp attitude is so that people will notice it. That's the interesting combination of elements—the campy theater side of it, and then the great musicians and the great arrangements. I love hearing these kind of arrangements because they show how good the songs really are. This record shows that heavy metal has a much broader musical spread than people give it credit for.

I know your co-producer on this, Jeffrey Weber, is a live-to-2-track

BY BLAIR JACKSON

"An indispensable tool for digital recording..."

—Joe Hardy



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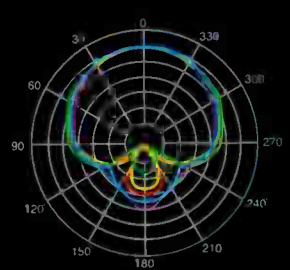

kind of guy.

And that's how we did this. We did a couple of overdubs, because Richie Blackmore was over in Europe, and we did a few lead and background vocals later at Ocean Way, 48-track digital, and at my house and a couple of other small studios. But all the strings and the band were live to 2-track; it was a wild ride. But I grew up doing all that stuff. Back when I started recording, there was only 2-track mono, or you'd find the occasional wild studio that had a 3-track.

What were the first places you worked?

The first studio I worked in was a garage that a postman owned in East L.A. And we recorded two or three albums there with my surf band, the New Dimension. I played lead guitar, and my friend Jimmy Greenspoon, who went on to be a founding member of Three Dog Night, played keyboards. We were 13 and 14 years old. Then we recorded a little at Armand Steiner's studio. After that, it was places like Hollywood Sound and Gold Star and Wally Heider's.

When did you stop being primarily a musician and start doing production instead?

Well, I played on nearly all the records I produced, too, up to and including *Dirty Dancing*. So in terms of being a musician, it's always been a little bit there. Sometimes a little more, sometimes a little less. On all the Osmond records I produced, I played the guitar solos. But then there would be records like Lou Rawls' where I didn't play anything. So it depends on the project, but I'd say I started to become a record producer, or to have that mentality, probably when I was about 13. That's when the surf band started and I wrote the songs. Generally, the leader of a band could either be the guy who books the band, or it could be the guy who musically runs the band, and I was doing both. Sometimes, when you're a teenager, having an opinion is what's important, because a lot of times the others are looking to defer to someone. In my case, in most of the groups I was in, I had a vision, and I tried to get everyone to pull together to accomplish that. I hope, on the records I do now, to have a vision. But it's not like I'm exclusive and I try to browbeat everybody into believing what I believe. If somebody has a great idea, I'd like to incorporate it. I like to be inclusive rather than exclusive. But somebody has to be sort of the coach, and that's a role I'm comfortable with.

What did you think in the mid- to late '60s in Los Angeles when you had this split between the sort of druggy Doors and Love kind of groups on one side, and then the cleaner Mamas & The Papas side of things? Of course, they were also heavily into drugs, but their image was clean.

I was never involved in the drug scene, so I was really blessed. I never got sucked down into that. A lot of my friends did. It can be a life destroyer, of course. But I always appreciated music for what it was, and I wasn't so much concerned whether Jim Morrison's lifestyle promoted drugs or anything in particular. At the same time, though, I know that many people are influenced by what they see as a successful formula, so they imitate how a singer or band acts offstage. And that didn't end in the '60s; that still comes up till today. I think if there's some kid in Iowa who thinks the only way to get truly creative is to get loaded because so-and-so does it, that's a real tragedy.

But I look back on the the time from the British Invasion [1964] up until

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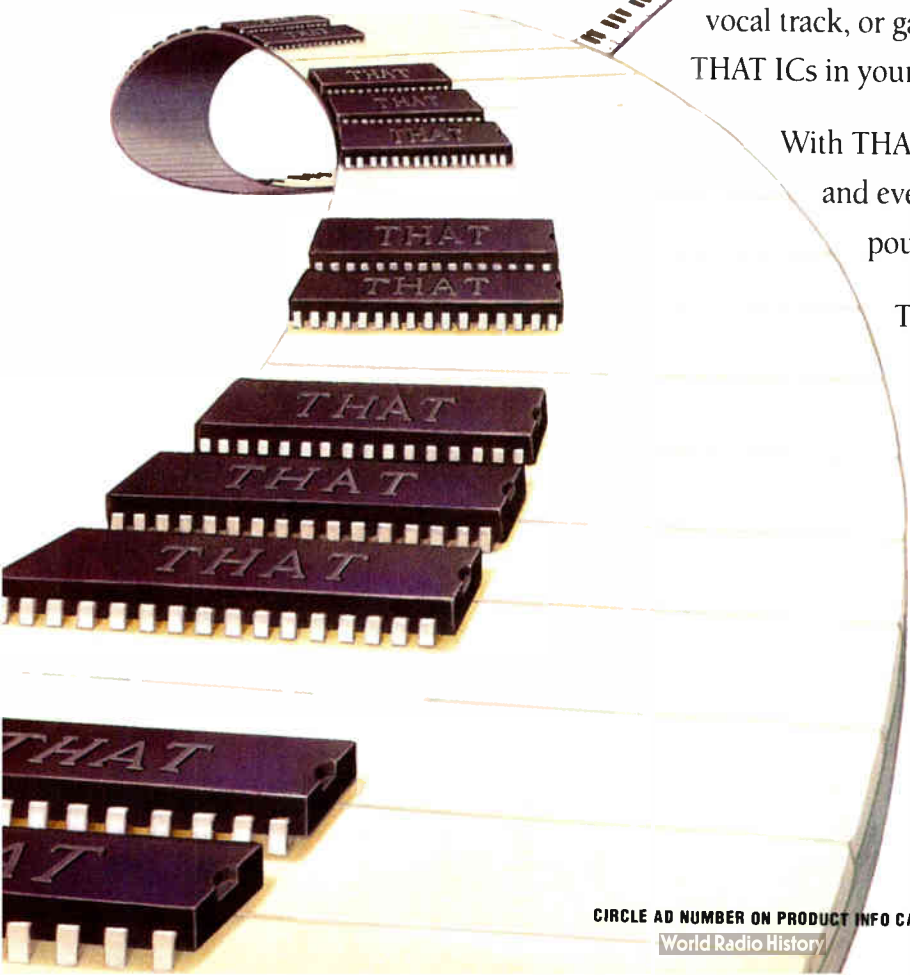

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about 1969 as one of the most intensely exciting times in the music business. You had this tremendous energy and creativity because none of these things had ever been done before. People were inventing ways to record this incredible music that was coming out of everywhere.

Did you feel an obligation to start incorporating odd sonic things into your productions in that era? "Wow, let's run this solo backwards!"

Oh yeah, I'm sure I was influenced by every color and every idea that came out of the mind of Brian Wilson and John and Paul and everyone else who was making good records then. I'm still influenced by all that, because those people were way beyond what happens today for the most part. Not only were they proven great over a 30-year period, but they had nothing to model on. Nobody had heard *Sgt. Pepper* before. Nobody had heard *Pet Sounds*. And let's not forget [Motown's] Berry Gordy, either. In the era after Frank Sinatra and Elvis Presley, The Beatles and Motown probably did more to influence the music business than anyone else. We'll be listening to that stuff forever.

And this all gets back to a different way of recording that isn't done that much any more, which we tried to get back to a little with Pat. When I used to do stuff at MGM with Lou Rawls or the Osmonds, it was all live orchestras. And though we didn't necessarily mix directly to 2-track, it was all done with everyone in the room at once and you got a certain sound, which I still love. I love the musicality of musicians playing off of one another. And I like that element in all these so called triple-A alternative bands, because I get the feeling that even if they overdub some things, there's at least a band there, with musicians relating to one another.

One of the things about all those great '60s records, too, is that the sounds were all generated from tube equipment—tube amplifiers, tube microphones, and in most cases in the early '60s, tube consoles, as well. As technology changed, a lot of that sound—that analog sound of the tubes—started to disappear somewhat, and then when things started to get too sterile, people started to reach back and say, "Wait a minute, I think we're missing something."

That's one reason there's a tube resurgence right now.

That's right. All of Pat's vocals on the new album were done on a Groove Tubes microphone and a Groove Tubes preamp right into the tape machine. I've been using Groove Tubes stuff for a few years now, and I really like it a lot. Of course, I also use a lot of older tube mics, too.

Is there a tangible difference to you between, say, a Groove Tubes mic and a Neumann classic?

Well, let's take the case of a [Neumann] 67, compared to the original Groove Tubes mic, whatever that model number was; their first one. The 67 is probably a little mellower; the Groove Tubes mic might be a little brighter. Outside of that, they really exhibit the same type of characteristics. Neither one of them tends to color the sound, but somehow it sounds better than—as good as they are—a [AKG] 414 to me. The acceptance of the signal from an electric guitar going into this Groove Tubes mic is such that we don't use any EQ. I like to go straight from the mics, through Groove Tubes preamps—I have a dozen—right into the tape machine, bypassing the console completely, just

using the levels on the preamps. And in some cases I've gone through an LA-2A or something like that, too. On some projects I might just use the Groove Tubes on the bass and a vocal; it depends on the music and the style you're trying to achieve. Obviously, there are a lot of vintage mics that sound wonderful. I've got an M49, a couple of 269s and 67s, and all that kind of stuff.

Is this something you've checked out personally, or is it something you let your engineers decide?

No, this is something I do personally. I've done a lot of engineering. I started engineering when I was about 15 probably, because it was part of the process—if there was something involved in the process of making music that I didn't know about, I wanted to at least know something about it. It wasn't that I was going to become the best engineer or the best arranger or the best guitar player or best anything. But I wanted to know something about it so if I'm talking to somebody I know what I'm communicating and I know what they're saying. When I was about 16, I had a friend who had a 2-track—an Ampex 351—and a couple of Neumann microphones, and I had a little Sony mixer, so I connected it all up in my mother's living room and we recorded some of the first West Coast Pop Art Experimental Band stuff like that. Then we opened our own tiny little studio a few blocks away. And that's when I started to write songs for other groups and record them. It wasn't like I knew how to repair anything, but I could run it and I knew how to make it sound the way I wanted to.

When recording moved away from live tracking and started being layered one or two instruments at a time, did you follow suit?

I still did a lot of it the way I'd been doing it. I've always tried to get as many people at one time as was practical. You know, we were all recording in such dead rooms then. Tom Hidley was designing rooms that had these ceilings that would just suck the sound right out of the room—it was an effort to get everything isolated so there wasn't any leakage, so you'd have more control. But actually this wasn't as *musical* a way to record, because there is a certain amount of air to music: If you went to see a philharmonic orchestra, what would they sound like in a dead room? Yet, this became the norm for a while and everyone went along with it thinking it was the way it was supposed to be, and obviously there were lots of really good-sounding records made in those kind of studios. But it was a different sound and, personally, I'm very happy with the resurgence of a more musical sound in studios.

I just feel so fortunate that I've been able to stay in this business through the years to see all the changes in music and recording, and have the opportunity to work with such talented people. I love it. It's what I always wanted to do. School was never an important thing for me. Music was the whole thing for me.

So what did your parents, who paid for your music lessons and indulged your artistic whims, think when you turned up as the music supervisor and composer for Wild in the Streets ***and*** The Trip***?***

All kidding aside, they really did support me. I grew up with my mother, my grandmother and my great-grandmother, and they were not well-to-do. They had a modest income, and they were convinced that I was going to be successful in the music business in some way. Originally, they thought I'd be Van Cliburn, because I started playing classical piano when I was 4. When I got to be 10 or 11, I started playing more popular piano, so they thought maybe I'd be Roger Williams.

You never made it to Ray Manzarek...

No, no, they didn't put that connection together. Later, when I got together with Jimmy Greenspoon, who also played piano, I started playing guitar, and once I did that, I never really went back to being a pianist.

But my mother, grandmother and great-grandmother sacrificed to give me lessons and buy me instruments, and to support me even though I did very poorly in school. They never once said 'You've got to quit the band and get on with your life.' They believed this was going to be my life, and I'm extremely grateful for that.

Okay, but what about those youth-sploitation films you were involved with?

Mike [Curb] had a deal to put together the music for all those films and put soundtracks out. I was about 16 or 17, and I'd help do the music. I sang on some of them, played on some of them, orchestrated some. My mom was thrilled that I was in the business doing something. It was a great learning experience for me to get on-the-job training.

I'm surprised Mike Curb would be involved in those kind of films, since it was the policy of his record label to not sign groups that were overtly into drugs or whatever.

I don't know. We weren't making the films. We weren't endorsing them and films weren't endorsing them, either. They were actually quite tame. I'm proud of the work we did, and I'm grateful for having had the opportunity. There were a lot of talented filmmakers and actors and actresses that went through that particular movie mill.

I would be remiss if I didn't ask you something about your association with teen idols. How did you become Mr. Teen Idol Producer, and what special challenges does it pose to work with what I can only assume are either relatively inexperienced or completely inexperienced singers?

Well, most of them were already quite experienced. The Osmonds, of course, were veteran performers already.

I used to see them on The Andy Williams Show.

Right. That's why, when we signed them, people said, "Kids aren't going to want to buy them; they're an adult act." Of course, it turned out exactly the opposite, though they started out appealing to adults exclusively. The Osmonds were my first foray into the teen idol thing, but I was only about 20 at the time. I was about the same age as Alan [Osmond], but older than the other performing Osmonds.

What was the governing aesthetic on teen idol sessions? It wasn't the same as the Frankie Avalon/Bobby Rydell era of teen idols.

No, it was different. With someone like Donny Osmond, we were doing mostly remakes of other songs his fans would never have heard. We had the incomparable Don Costa doing the charts, and we were all just trying to present the songs in a nice emotional way, which seemed to work for Donny's audience. We were trying to make records that we imagined the fans would like. The Osmond Brothers wrote a lot of their own songs, and they were more rock 'n' roll-based, and they performed them, too. As I said, I played the guitar solos on their records, but they were good musicians, and working with them was like working with any other band in a way.

How about Shaun Cassidy and Leif Garrett?

I met Shaun when he was about 17. He'd been performing in a group and been in musicals with his mother and father [actors Jack Cassidy and Shirley Jones]—lots of experience, and very talented. We took him into the studio, and he recorded a couple of records that did very well overseas. Then we had a hit here with "Da Doo Ron Ron," and around the same time he was on *The*

Hardy Boys [TV series], and all of a sudden he was a teen idol. But he didn't set out to be a teen idol; he was setting out to make a pop record, but he happened to be a good-looking guy on the television. At that time, we recorded "Surfin' USA" and some other Beach Boys song for *The Hardy Boys* [show], and Shaun got tons of letters to release it, but he didn't want to do it, so we did it with Leif, and that was sort of the start of his career as a singer—he had a couple of Top 20 records there.

It seems like all these people have had to work hard to overcome being teen idols; it's worked against them later in life.

That's true, and it's too bad. Shaun Cassidy is an extremely talented guy—now he's a successful writer and creator of TV series—and I never doubted that he would be successful. Some teen idols never overcome it. That doesn't mean they aren't talented and they aren't valid, but we judge our heroes very strangely in this country, and sometimes they have to live up to a particular ideal and sometimes they have to be a certain way or they won't be accepted. That's just the nature of it and that's part of the package. I don't think Shaun would change it. I think he feels good about what he did and what he's doing now.

Did you have points on all those records?

Oh, sure. That's what producers do. But I must tell you, that has never been how I've judged whether something is worth doing or not, and I know that sounds like a lie that everyone says. In Shaun's case, we didn't have any money to make the first record. I played most of the instruments and we did the best we could. In the case of *Dirty Dancing*, one of my biggest successes, it was a small-budget movie. They weren't paying me some giant fee to go out and find people to be on it. As a matter of fact, I couldn't find people to sing the songs; it was very difficult. We were extremely fortunate to get the wonderful people we did. There is no way in the world someone could have predicted that that record would be so popular.

The bottom line for me has always been, "Is this going to be fun? Is this going to be exciting? Who do I get to work with?" Obviously, this is a business, and we're in it to make a living, but there's more to it than that. Anybody will tell you that. And it's true. ■

BRAD FIEDEL

SCORING AT HOME

You've heard composer Brad Fiedel's work on soundtracks for *True Lies, Terminator, T2, Blink* and *Johnny Mnemonic*, and on many made-for-TV movies, including HBO's *Rasputin*, NBC's *People vs. Jean Harris* and TNT's *Cold Sassy Tree*. And it might surprise some that much of the work was done at home. His latest setup, outside of Santa Barbara, is his most elaborate yet: a converted guest house complete with fireplace and kitchen, designed from the ground up in collaboration with Pelonis Sound & Acoustics.

Fiedel, whose first instrument was the piano, started out in the '70s as a singer/songwriter and early on recognized the potential for synthesizers; he played electronic keyboards on tour with Hall & Oates before beginning to score for films. "I was one of the people playing around with Moogs and the Arp 2600," he says. "The kind of work I do with electronics I like to do alone, so I built my own facility. Prior even to doing the score for *Terminator* in 1984, I had a room where I could sync a 24-track to video."

Although he engineers most of what he records at home, Fiedel enlists mixer Tim Boyle for orchestral recording. "On a big score, I'll lay all my Fairlight sounds to 24-track," he explains. "Then I'll bring that to Sony, or O'Henry [Studios in Los Angeles], where Tim will mix the orchestra onto a digital 48-track machine running in sync with my 24-track tape. I produce from the control room, where Tim mixes the recording while I'm setting up the monitor mix. That way, for each cue the orchestra hears the mix that I want them to hear."

The core of Fiedel's setup is a trusty Sound Workshop 334 board with Disk Mix 3 automation, along with two Fairlight Series 3 CMIs for sampling. He composes on piano or on Macintosh with Performer software. For film projects he usually records to an Otari 24-track with SR and mixes to an Otari MTR10 3-track with timecode and SR. "Television projects and demos I mix to DAT, or to the 4-track. I do have a PCM 800, the Sony version of the DA-88, but it's still in the box."

Actually, Fiedel finds himself recording to many different machines, with analog Ampex 456 tape as his medium of choice. He's not a fan of digital 8-tracks. "The bottom line," he comments, "is that they just don't sound as good. I use special filters like Apogees when I can—for instance, on T2: 3D, which I did on DA-88 for Universal Studios Florida. These days, however, on almost every stage the music is delivered on DA-88—you put it in Pro Tools, cut it and drop it onto DA-88. It's convenient and cost-efficient, but at this point I still prefer my music to be recorded on analog tape with SR. Of course, on an action picture, once you get up against all the sound effects it's sort of a moot point."

One new feature of Fiedel's new studio is the monitoring: Tannoy AMS 12s. "I used to have big JBLs with biradial horns," Fiedel says. "They made a very good translation to film, although they sounded a bit 'mushy' compared to the NS10s I use for close monitoring. Now, I notice the 10s sound mushy compared to the Tannoys, which is surprising because the Tannoys are farther away from me than in a typical music room. That's one of the things I threw at Chris [Pelonis]. We had planned on the traditional music room design, where you sit close to that front monitor triangle. But this room has more space and an 8-foot projection screen, so I wanted to sit back from the screen and speakers, with a lounge area in front of the board. It's more like a theater or dubbing stage.

"Designing a room for a film composer is different. Obviously, it has to sound great for very diverse kinds of music, from a quiet score to something really intense. At some studios, the design approach of the studio just screams at you, but for me that doesn't work. I have to be able to go in and do a really dark, seedy, urban kind of film or perhaps one that is soaring and beautiful, all in the same environment. It was a pleasure working with Chris because he understood this, and it worked out great." ■

BY MAUREEN DRONEY

BROADWAY ON DISC

JAMES NICHOLS RECORDS SOUNDTRACKS IN NEW YORK

BY ERIC RUDOLPH

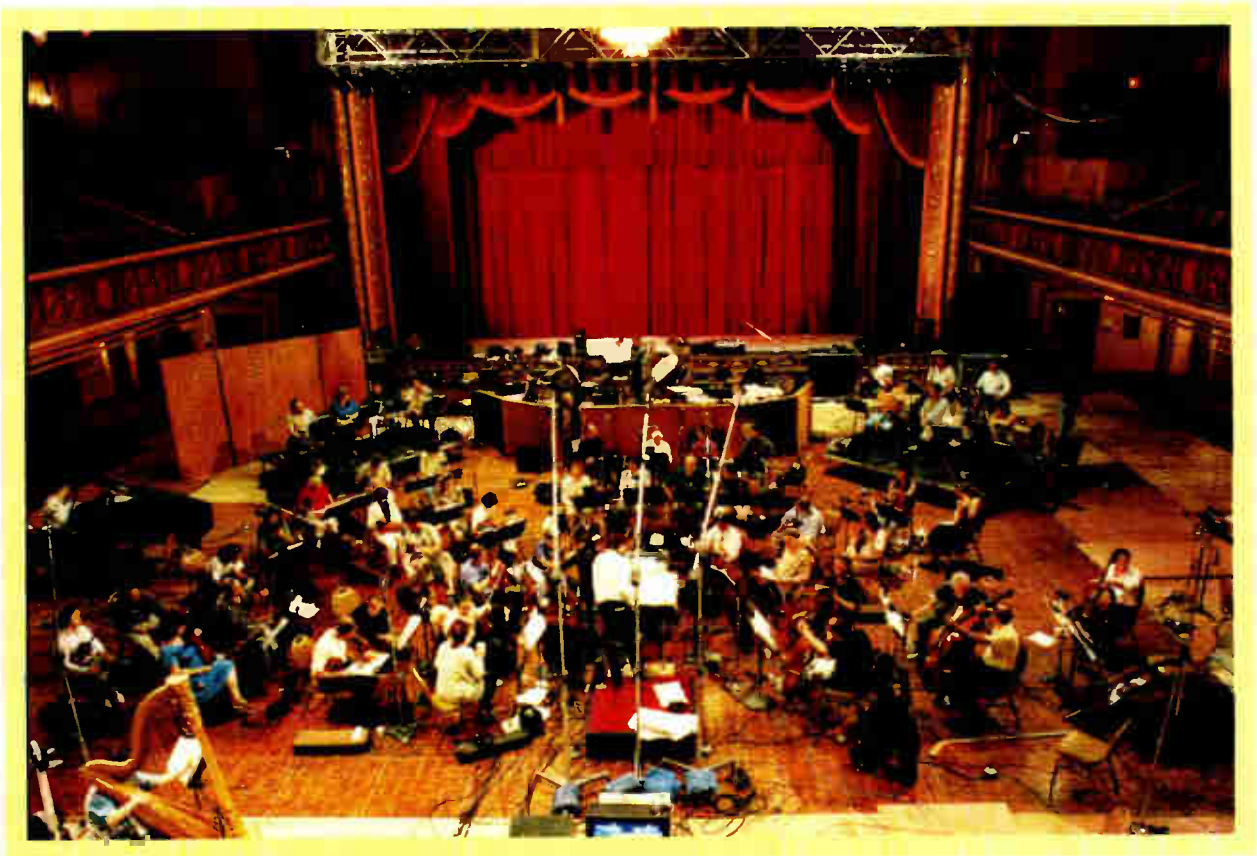
Two major developments have recently roiled the waters of the Broadway soundtrack recording industry. First, the rooms where most Broadway soundtracks were recorded over the past few decades have been demolished, such as the enormous RCA Studios, which were improbably located in the company's heart-of-midtown skyscraper. RCA (later BMG) Studio A, able to accommodate upward of 100 pieces, was one of the few games in town for Broadway recording from the time it opened in the 1960s. But thanks to the Byzantine vagaries of the Manhattan real estate jungle, the studios were, with considerable controversy, knocked down and replaced with a regional IRS office in 1993. Then, following on that disruption, rock and urban music have been making loud, lucrative inroads onto The Great White Way, led by *Rent* and *Bring in Da Noise, Bring in Da Funk*, which blew into Broadway houses from smaller, lower-budget, but nonetheless SRO runs downtown.

Someone well poised to roll with these changes is engineer/producer James Nichols, a longtime Broadway specialist. A tall, easygoing man, Nichols has an eclectic resume. He has worked as an engineer with the Clash on *Sandinista* and with jazz greats such as Terence Blanchard, Roy Hargrove and Jimmy Heath, and he won a Grammy for his board work on *The Complete Jasha Heifetz Collection*. It is somehow not surprising that he fits in comfortably with show tunes as well.

He began recording Broadway soundtracks at RCA and recently gained his first producer's credit and a Grammy nomination for the live recording of *Bring in Da Noise*. "The business is definitely changing," Nichols says. "Broadway soundtracks have been done in the same way for quite a while now. The cast and the augmented pit orchestra go into a big studio and basically record everything live during one 15-hour day. Now along comes *Rent*, which I understand was done more like a rock band's record in the studio over a longer period of time, with a producer (Arif Mardin) who is known for rock and R&B. And with *Noise/Funk*, we did something that hadn't been done in over 20 years, which was record the show live during two performances.

"To do *Noise/Funk* in a studio would've taken much longer than one long day, it is such a thick production," Nichols continues. "And we would've completely killed the live, on-the-edge experience that is so crucial to the energy of the show. We thought about bringing an audience into the

TOP AND BACKGROUND PHOTO: PAUL SIMCOCK/IMAGE BANK



A typical orchestral setup in the main ballroom at Manhattan Center Studios

studio, but we still would've needed weeks to get it right in that setting. We ran a stage splitter box off of the house mics and ran the signals to Dave Hewitt's Remote Recording Services truck. We didn't want to disturb the show by bringing in our own mics; it would have meant a very serious disruption of several days. I changed just a few mics in the pit, to get a smoother sound, but otherwise we used the house mic setup as-is. We taped two shows, a Friday night and a Saturday matinee. That was it: two takes and a little overdubbing."

Noise/Funk, a show about the history of tap dancing, has an unusual mic setup (see January 1997 *Mix* for details). Both of each dancer's shoes are fitted with a Sennheiser wireless mic, attached with Velcro near the laces; 55 9-inch Ceducer piano contact mics are built into the stage deck. This unusual setup was dictated by the show's star, Savion Glover, who wanted a high level of foldback on his tapping.

For the recording, *Noise/Funk* was tracked to two 24-track analog recorders and two DA-88s (the modular multitracks were used primarily for the audience and ancillary percussion tracks). "We would ideally have liked to use two 48-track digital machines," Nichols explains, "like we do now when we make a studio Broadway record. But because of union concessions, the production budget was tight."

Additional work on the soundtrack took place at New York's Manhattan Center Studios, where Nichols is a staff producer/engineer. He was hired last summer and was sought out in part for his Broadway soundtrack expertise, and for his long experience as an engineer for film-scoring sessions. (The facility has a huge, well-seasoned ballroom—the primary recording facility for the Metropolitan Opera and the New York Philharmonic for the past 20 years—that has just been equipped with a Neve VR 96 console and modern control and machine rooms.) At Manhattan Center, some sound effects were added to the *Noise/Funk* soundtrack, "to make up for the visuals that

New York-based scoring/mix engineer James Nichols.

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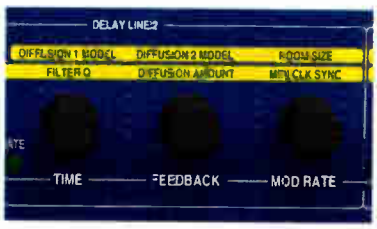

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> LIVE RECORDING OF BROADWAY SHOWS IS NOT CURRENTLY DONE, BECAUSE PEOPLE ARE AFRAID OF LOSING THE CONTROL YOU HAVE WORKING IN A STUDIO.
>
> —JAMES NICHOLS

you don't see," Nichols says. Some tapping, and a few vocal cues that were "lost in the muddle," were also put in during post. "There is so much going on in that show, it's inevitable that some things would get lost," Nichols notes.

Some post-production manipulation was also added to vary the feel of the recording. "George Wolfe, who conceived the show, wanted us to make each scene sound a little different from the others, to give them each their own character, whereas our original idea was to simply document the show," says Nichols. "[Wolfe] would say, 'Can we make this scene sound like it was done in the studio?' So we'd pull the audience out of a segment here and there, such as the Hollywood and Slave Ships cuts, and just use the three key mics, to meet George's creative vision for the recording."

Nichols is hoping more shows will be recorded live in the near future. "Live recording of Broadway shows is not currently done, because people are afraid of losing the control you have working in a studio. What do you do if you're budgeted to tape two performances live, and for both shows the lead singer was slightly off?"

Meanwhile, despite the noisy new upstarts, traditional Broadway musicals and cast recordings are still big business. Nichols recently engineered *Chicago* and *Once Upon a Mattress* at New York's Hit Factory, where the big room has taken over a fair share of Broadway soundtrack work following the demise of the RCA Studios. (When Nichols works on projects at studios other than Manhattan Center, he is hired through his new home-base facility.)

"At the old RCA Studios in New York, we had a large 100x60x40-foot room with a stage that could hold 40 people easily," Nichols says. "The orchestra was

set up on the floor, backs to the stage, and the principal vocalists and chorus were placed on the stage. Because the Hit Factory did not have a stage, we started tracking our shows with the vocals in the studio's large booth on headphones. This method worked well until the Chicago sessions. In the live show, the band is on the stage as part of the set design. Working in a booth with headphones is so far removed from what they do night after night onstage that it was very hard for them.

"So for *Mattress* we went back to the old-style setup, with everyone except the percussion in the room together," he continues. "With the orchestra on the floor, we placed the vocalists on two-tier risers behind the brass."

Microphone setup, he says, depends on the producer. When he works with Jay David Saks (vice president and executive producer for RCA Victor and six-time Grammy-winning Broadway soundtrack producer, whose credits include the sparkling revival of *Guys and Dolls*, *Into the Woods* and *Jerome Robbins' Broadway*) Nichols says "We mike fairly close, without any room mics. With Tom Shepard, the main sound is taken with room mics, with soloists close-miked for extra bite. Jay likes to get an immediate close sound and build his distance with reverb; it's just two different approaches."

The mic setups for a Saks soundtrack session are straightforward. "If there are four singers in a scene, they'll each have a mic, usually a Neumann U47 if we can get enough of them," Nichols says. "The brass is usually U87s, one for every two players. Woodwinds normally get AKG 452s and strings Neumann TLM 140s; both sections use one mic for every four players. The bass is usually a U47, the drums get SM57s for the snare and high-hat, the kick gets an AKG D-112 and the overheads use AKG 452s. For the toms I use whatever dynamics I can get, often Sennheisers. The keyboards are usually all direct.

"On the drums I use dynamic mics because of the loud bursts of sound, and also for safety, because the mics can get smacked easily! Instead of a $500 mic, I try to use $50 mics on drums. I use large-capsule mics on low frequencies, such as a bass, at a reasonable distance, say one to two feet, so I can catch the longer wave. For vocals I like to use a mid-sized capsule, and for high frequencies I go for the smaller capsule.

"The biggest challenge is miking the strings," Nichols continues, "which get the most additional players when

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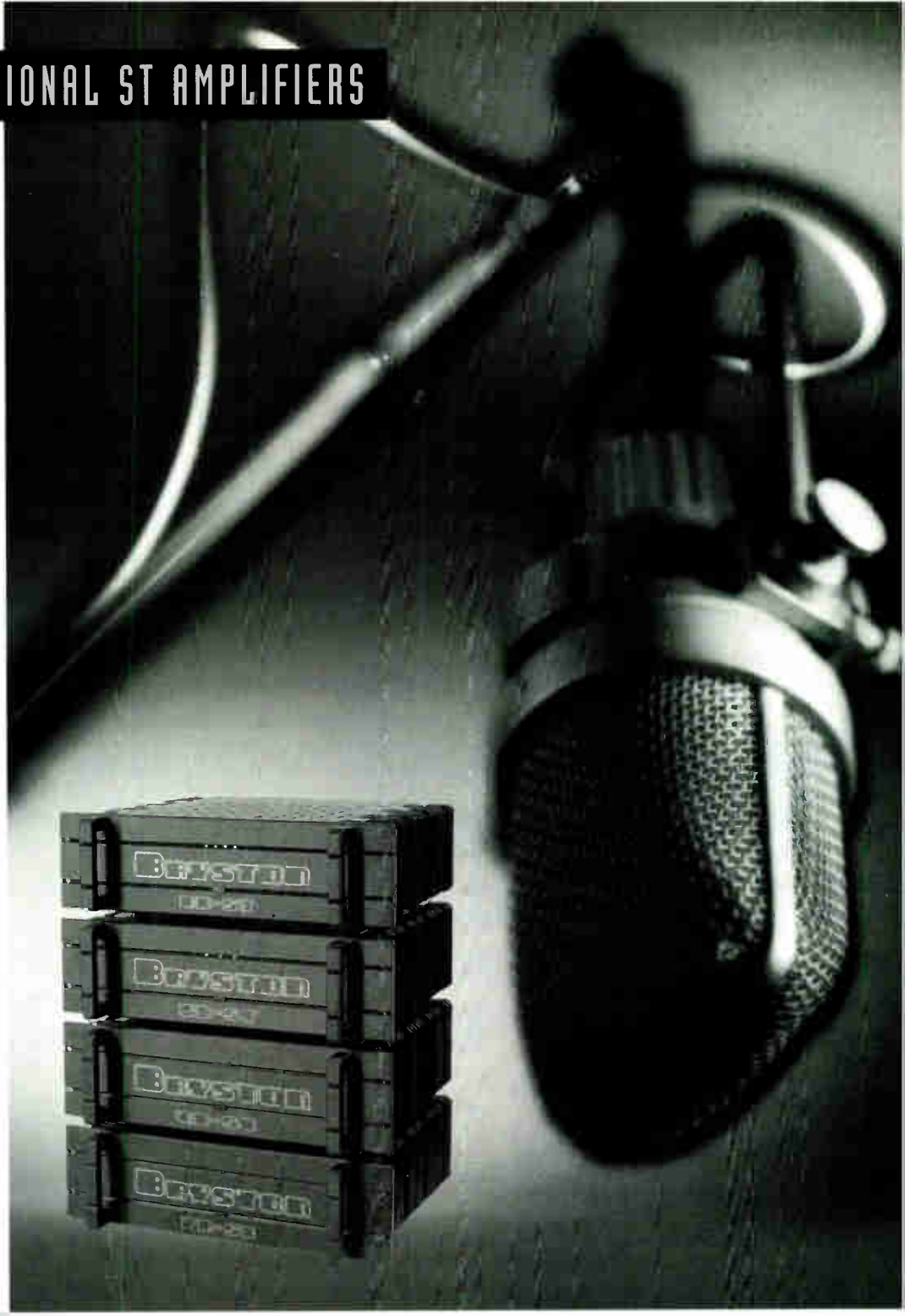

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recording. However, there are never enough strings! At the Hit Factory, the brass is always bouncing off the wall near the strings and getting into their mics. Everyone is always playing *ff*'s on these dates, and because [of that] the strings tend to get washed out."

The nature of the traditional Broadway proscenium format also demands adaptation. "Another big problem is how wide do you go with your tracks?" Nichols says. "Broadway stages are not that wide, so you don't want things sounding like they are spread all over. I could often use 12 tracks for drums, but it's usually not in the show that all the toms will get played, so why do it?"

Faders are handled as if the show were a live performance and the recording engineer were running the FOH board, with cues flown in live and an eye on input level, clarity and noise. Tracking these days is usually to two 48-track digital recorders, "for the availability of the tracks and ease of editing," Nichols says. Mixing normally takes a few weeks, depending on how complex the show is. "As we're recording, Jay Saks will be building his road map, using five or six different color pens on his score. That really helps to keep the number of takes down and speed up the mix, because he keeps very careful track of what worked and what didn't from each take. That helps us keep on schedule, which is extremely important when doing Broadway recordings. You have this one long day to get it, and that is it! But we never go seriously over schedule; with *Chicago*, which was very difficult because of the lack of sight lines to the conductor, we only went a half-hour over."

Aside from all the technical details, the hardest part of making a Broadway soundtrack recording in a single day is dealing with the talent, who are in unfamiliar surroundings (but who have the compensating factor of being paid a full week's show salary for the one day of recording). That job, however, falls on the producer's shoulders. "I've seen Jay Saks go in and talk to people who are on the verge of tears," Nichols says. "He'll cuddle them and talk to them for a while, and then they'll go in the studio and sing their big number like they did the night before, when they brought down the house. Knowing how to get the most out of the talent and helping them over the rough spots, that's the hard part." ■

Eric Rudolph is a New York-based writer.

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Powered Reference Monitors And Subwoofers

A (NEAR) FIELD SURVEY

BY CHRIS MICHIE

Choosing powered near-field studio monitors is quite different from selecting any other piece of audio gear. Of course, price, performance, availability, reliability, popularity and looks are all factors that a serious buyer should consider, along with recommendations from peers and clients. But the appearance of powered reference monitors as a distinct product category is relatively recent—when *Mix* surveyed studio monitors in 1990 and 1991, only a handful of manufacturers offered powered models. These days, it seems that new companies pop up and introduce a new powered monitor system every couple of weeks. So how to proceed?

POWERED Reference Monitors And Subwoofers

Faced with the unfamiliar, technically minded buyers turn to specifications. But specs for audio gear (and transducers, in particular) often bear little relation to perceived reality, and most published loudspeaker specs should be viewed with some skepticism. More to the point, there is really no substitute for a thorough listening test.

At least dimensional specs (size and weight) tend to be accurate. If you are looking for speakers that sit comfortably on an 8-inch deep meter bridge, or surround speakers that weigh less than 30 pounds, these specs may be helpful. Magnetic shielding may be necessary in some applications; many vendors provide this as an option. Most of the models described here accept a balanced line-level input on an XLR connector, though some only offer unbalanced ¼-inch or RCA inputs.

Although all manufacturers presum-

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POWERED Reference Monitors And Subwoofers

ably include clear and pleasing sound reproduction among their design criteria, it is reasonable to assume that certain trade-offs have been made in order to tailor products for different price points, applications and users. For example, the first powered monitors were designed for convenience as much as for audio quality—Ampex offered a powered speaker in a suitcase-like cabinet (complete with handle) as part of a portable recording system in the late 1950s. And product literature for E-V's long-established Sentry® model emphasizes its suitability for rack-mounting in confined spaces, such as broadcast trucks.

More recently, several manufacturers have developed close-field speakers to complement an existing position in the large-scale, installed monitor market; Genelec, Tannoy and JBL are obvious examples. And the ever-increasing sales figures for multimedia computers and surround sound-ready video playback equipment have prompted some consumer playback system manufacturers to market their better systems for recording applications. The smart buyer may want to investigate these newcomers. After all, the Realistic Optimus 7 has been popular for some time, despite its Radio Shack pedigree. Though "multimedia" systems are not included in this survey, some of these monitors may well prove to be as good or better than some of the smaller systems aimed exclusively at the studio market.

Listed here (in manufacturer's alphabetical order) are all of the currently available powered monitors weighing less than 100 pounds, plus a selection of powered subwoofers.

ATC has a range of powered monitors in its SCM Pro Series. The latest model is the ATC SCM 20A Pro, an active two-way design with a 6-inch woofer and 1-inch tweeter powered by 250W bass/mid and 50W HF amps. Each cast-aluminum cabinet weighs 66 pounds and measures 10.6x17.6x12.2 inches (width by height by depth). Frequency response is 60 to 20k Hz, ±6 dB, and the maximum SPL at 1 meter is 108 dB. Super Linear magnet technology reportedly reduces the effects of Eddy currents. Input connectors are XLR; a rear panel selector provides five different LF boost settings, in addition to a flat reference setting. Price: $3,695/pair.

Audix Corporation recently upgraded its PH15 and PH125 systems. The Audix PH15-VS has a 5.25-inch woofer and ¾-inch tweeter, both driven by a 45W amplifier through a sixth-order Butterworth passive crossover, all in a compact, front-vented cabinet. Weight is 10 pounds, and dimensions are 6x9x9 inches. Frequency response: 50 to 20k Hz ±6 dB; max SPL is 88 dB at 1 meter. The PH15-VS features thermal protective circuitry and internal toroidal power supply, level control and an automatic on/off circuit, and magnetic shielding for workstation and video monitoring applications. Inputs are RCA. Price: $479/pair.

These days, it seems that new companies pop up and introduce a new powered monitor system every couple of weeks.

The PH125-VS uses the same components and amp as the PH15-VS but has dual woofers. Weight is 25 pounds, and dimensions are 7.5x15x10 inches. Frequency response: 50 to 20k Hz ±6 dB; max SPL is 90dB at 1 meter. Like the PH15-VS, the PH125-VS features thermal protection, toroidal power supply, level control, automatic on/off, and magnetic shielding. Inputs are RCA. Price: $649/pair.

Bag End offers the Infrasub 18 powered subwoofer, a front-firing unit containing a single 18-inch woofer driven by a 400W power amp. Weighing 92 pounds, the unit measures 21.25x23.5x18.25 inches. Electronic control is achieved by an ELF Integrator, and frequency response is 8 to 95 Hz ±3 dB. The Infrasub 18 is available in several wood finishes. Price: $1,895.

Bryston Ltd. in association with UK manufacturer **PMC**, offers three powered close-field monitors (the TB1SP, the LB1P, and the IB1S) and a powered subwoofer, the XB1A ($1,250). All of the near-field systems are transmission line systems, which reportedly provide one more full octave of bass response than equivalent ported loudspeaker designs.

The PMC/Bryston TB1SP includes one 150-watt amplifier that drives a 7-inch woofer and an aluminum alloy, ferrofluid-treated HF tweeter via a second-order six-element crossover. Cabinet weight is 26 pounds, and dimensions are 8x16x14 inches. Frequency response: 40 to 25k Hz ±3 dB; max SPL: 113 dB. Options include speaker stands and magnetic shielding. Connectors are XLR, RCA and ¼-inch. Price: $2,390/pair.

The LB1P offers a 5-inch woofer and double chamber soft dome silk tweeter. The crossover is a passive 12-element, fourth-order design. The cabinet weighs 26 pounds and measures 7x20x14 inches. Frequency response: 35 to 25k Hz ±3 dB; maximum SPL: 114 dB. Options include speaker stands and magnetic shielding. Connectors are XLR, RCA and ¼-inch. Price: $3,650/pair.

The IB1S is a three-way system featuring a 10-inch Nomex/carbon fiber flat woofer, a soft dome midrange unit, and a double-chamber soft dome silk tweeter. One amplifier drives all units via a passive 25-element fourth-order crossover. The 65-pound cabinet measures 13x31x22 inches. Frequency response: 25 to 25k Hz ±3 dB; max SPL: 116dB. Options include speaker stands, magnetic shielding and a "film curve" filter. Connectors are XLR, RCA and ¼-inch. Price: $5,700/pair.

Diamond Audio Technology Inc. offers two satellite/subwoofer systems, the S2 Pro-Media 4060 and the S2 Pro-Media 4100 systems, and two powered subwoofers, the S2 Pro-Media 1060 and S2 Pro-Media 1100. In the satellite/subwoofer systems, a single 3-channel amplifier in the subwoofer cabinet drives both subwoofer and satellite near-fields. A remote-control unit (sized to insert in an empty PC disk drive slot) features level, input select, bass treble, balance and loudness controls, and a 3DSP™ enhancement process selector switch.

Diamond's S2 PM-4060 system satellite speakers feature a 4-inch midrange woofer and a ½-inch poly-aluminum dome tweeter in a die-cast aluminum cabinet weighing about 4 pounds and

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Audix PH15-VS

POWERED Reference Monitors And Subwoofers

measuring 4.75x8.5x5.5 inches. The subwoofer has a single 6.5-inch neodymium dual voice coil woofer. Weight of the subwoofer is about 20 pounds, and dimensions are 8x11.5x14.5 inches. One 30-watt and two 15-watt amps provide power; crossover is active 12dB/octave high- and lowpass at 120 Hz, asymmetrical 12/6 dB/octave passive at 4 kHz. System frequency response is 60 to 20k Hz ±3 dB; max SPL at 1 meter is 103 dB (<10% THD). Input connectors are RCA and ¼-inch. Price for the complete S2 PM-4060 system is $499; satellite speaker floor stands are optional.

The S2 PM-4100 system is similar to the 4060 system and shares the same satellite speakers and control unit, though mid/high amps are 250-watt. The subwoofer, which uses an 8-inch neodymium dual voice coil woofer driven by a 50-watt amp, weighs about 30 pounds and measures 8x16.5x17 inches. Frequency response for the system is 50 to 20k Hz ±3 dB; max SPL at 1 meter is 106 dB (<10% THD). Price for the complete S2 PM-4100 system is $659.

The S2 PM-1060 subwoofer uses the same cabinet and woofer as the PM-4060 system subwoofer but has a single-channel 60-watt amp. Frequency response: 50 to 140 Hz ±3 dB (depending on adjustable filter settings); max SPL: 103 dB. Input to the subwoofer may be either speaker-level (from a 250-watt maximum amplifier) or line-level. In the case of speaker level input, the signal is divided into a low-frequency component (crossover is fixed at 120 Hz, 6dB/octave) that drives the sub, and high-frequency signals, which are passed to the user's satellite speakers. Price: $289.

The S2 PM-1100 subwoofer is the same size as the PM-4100 system sub, and contains a single-channel 100-watt amp. Other specs are the same as for the PM-1060. Price: $399.

Dynaudio Acoustics offers two new bi-amplified monitors, the BM15A and the BM6A. The BM15A contains a 9.5-inch woofer powered by a 150-watt, and a 1-inch Esotec tweeter driven by an 80-watt. The electronic crossover is fourth-order, phase-aligned at 1.5 kHz. The 42-pound cabinet measures 11.6x18.2x14 inches. Frequency response: 40 to 20k Hz, ±3 dB; max SPL at 1 meter is 119 dB (both cabinets driven). Controls include variable LF and HF level trim and input sensitivity. Input connector is XLR. Price: $3,399/pair.

The Dynaudio Acoustics BM6A has a 6.7-inch woofer and a 1-inch soft dome tweeter, two 100-watt MOSFET amplifiers and a sixth-order, phase-aligned electronic crossover (2.2 kHz). The cabinet weighs 34 pounds and measures 8.6x3.5x11.4 inches. Frequency response: 45 to 20k Hz ±3 dB, and maximum SPL at 1 meter is 116 dB (both cabinets driven). Controls include variable LF and HF level trim and input sensitivity. The unit includes clip protection circuitry and an overload indicator. Input connector is XLR. Price: $2,199/pair.

The recommended subwoofer for both BM15A and BM6A is Dynaudio's ABES (Active Bass Extension System), a dual-woofer powered unit that extends frequency response to 35 Hz. Weighing 150 pounds and measuring 39.5x15.75x25.2 inches, the ABES includes its own 305-watt amplifier and 24dB/octave Linkwitz-Reilly crossover at 95 Hz (adjustable). Frequency response: 35 to 95 Hz; max SPL: 126 dB. In typical applications, the unit provides a highpass filtered line signal for one or two associated near-field monitors; an optional surround sound extender unit provides facilities for sub-bass monitoring in LCRS configurations. Price: $5,750.

The **Electro-Voice** Sentry™ 100EL includes a single 50W amplifier that drives a 8-inch woofer and a Super-Dome™ tweeter via a fourth-order Butterworth crossover filter (crossover frequency is 2 kHz). A sharp cutoff highpass filter ensures that subsonic information does not reach the amp or woofer. Front panel controls include a system level control (30dB range) and a continuously variable HF shelf control that varies HF response from +2 dB to -4 dB relative to a nominal flat reference. The 33-pound, vented enclosure measures 12x17.25x11.5 inches, dimensions that allow for rackmounting in space-constricted environments, such as broadcast trucks (optional rackmount/wall-mount kit available separately). Frequency response: 45 to 18k Hz; max SPL: 108 dB. Connectors include XLR and unbalanced ¼-inch. Price: $909 each ($1,818/pair).

The 20/20-*bas*™ near-field studio system from **Event Electronics** is a bi-amped design and combines an 8-inch

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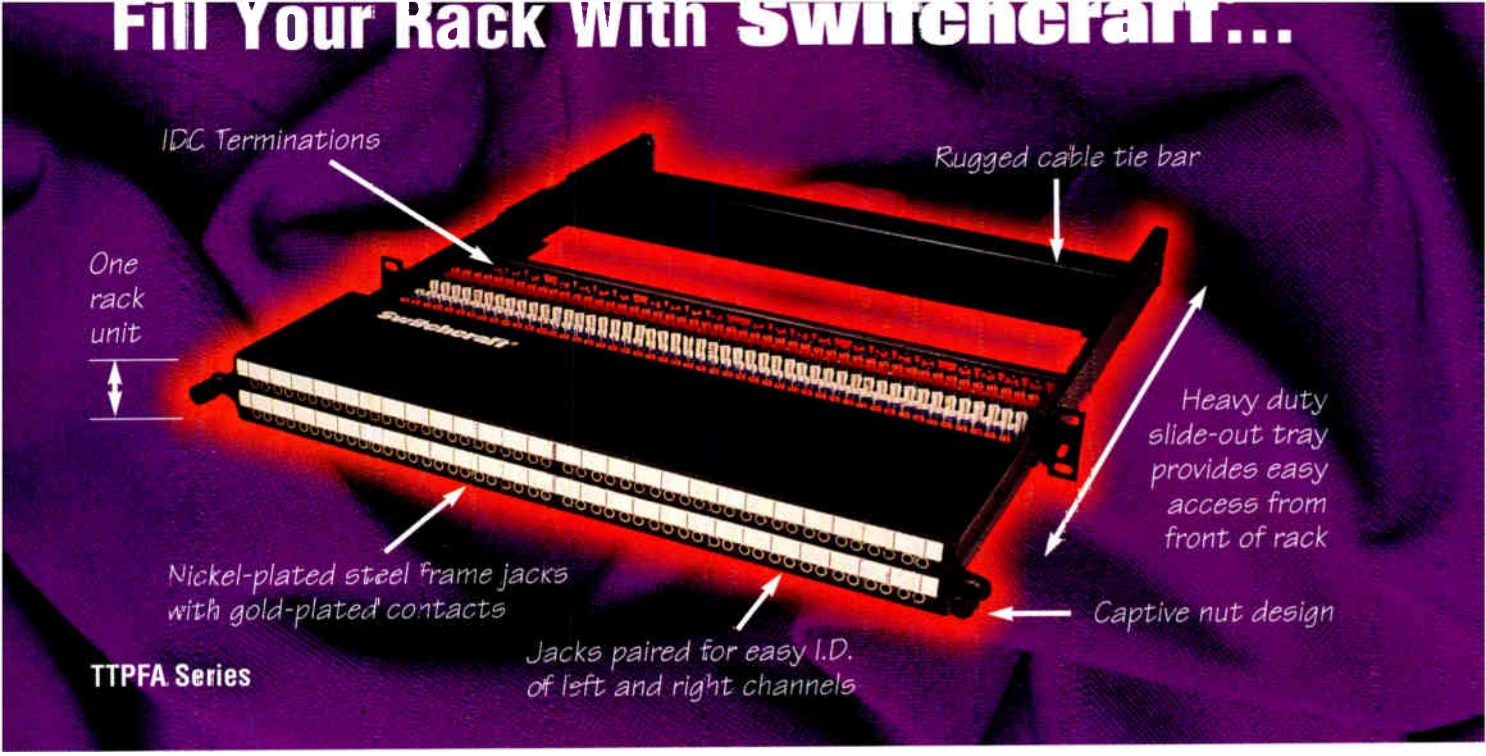
woofer and 1-inch ferrofluid-cooled, silk-dome tweeter with 130- and 70-watt Class AB amps. Drivers are magnetically shielded. Each front-ported ¾-inch laminated MDF cabinet weighs 28 pounds and measures 10.25x14.75x11.75 inches. The active fourth-order crossover is at 2.6 kHz. Frequency response: 45 to 20k Hz (±2 dB). Maximum SPL is 110 dB. Features include continuously variable input over a 20dB range, power/clipping LEDs, variable ±3 dB HF/LF trims and circuit breaker. Input connector is a Neutrik Combo ¼-inch/XLR connector for balanced/unbalanced inputs at -10 or +4dB levels. Price: $999/pair.

The 20/20-*p*™ powered direct-field monitor is also bi-amped and features an 8-inch woofer and 1-inch ferrofluid-cooled, silk-dome tweeter. Amps are both 100-watt, and drivers are magnetically shielded for multimedia and video post applications. Cabinet is made of ¾-inch laminated MDF and weighs 33 pounds. Dimensions are 10.25x14.75x11.75 inches. Crossover is second-order asymmetrical. Frequency response: 35 to 20k Hz (±2.5 dB). Maximum SPL is 108 dB. Controls and input connector are the same as for the 20/20-*bas*. Price: $599/pair.

Event's Tria™ tri-amplified monitor system is a complete subwoofer/satellite system. Each satellite mid/high cabinet contains a 5.25-inch polypropylene cone driver and a 1-inch neodymium soft dome tweeter, each driven by its own 75-watt amp. The 11-pound monitors are 7.5x10.5x9 inches. The Very Low Frequency driver/amp station contains a mag-shielded 8-inch floor-loaded woofer driven by a single 75-watt amp. Weight is 34 pounds, and size is 12x18.5x11 inches. System frequency response is 35 to 20k Hz ±2.5 dB; max SPL: 110 dB. System price is $849.

Genelec Inc. (Sudbury, MA) offers an exhaustively comprehensive range of active monitors, ranging from compact near-field models to full-size mains for studio and film sound post applications, plus active subwoofers. Described here are only those systems that could serve as close-field monitors (that is, they weigh less than 100 pounds and might possibly fit on a meter bridge) and associated subwoofers.



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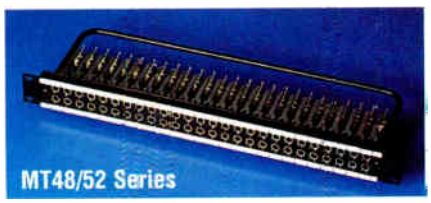

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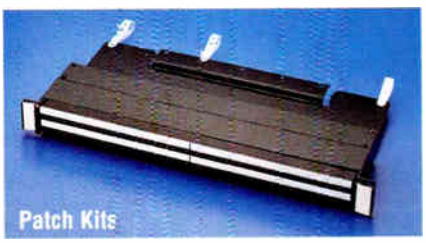

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Genelec's newest model, the bi-amplified 1029A, sports a 5-inch woofer and a ¾-inch tweeter powered by identical 40W amp modules in a 12.5-pound cabinet measuring 6x10x7.5 inches. Frequency response: 68 to 18k Hz ±2.5 dB; max SPL: 110 dB/pair. Inputs are XLR and ¼-inch TRS. Front panel controls include AC switch, status LED and a volume pot that can also control the level of associated subwoofers (recommended subwoofers are 1091A or 1092A models, which extend LF performance to 38 Hz). Bass roll-off, bass tilt and treble tilt controls are placed on the cabinet rear. Other features include mag shielding and threading for Omnimount™ wall brackets. Price: $535 each ($1,070/pair).

Introduced in 1994, the bi-amplified 1030AP contains a 6.5-inch woofer (80-watt amp) and a ¾-inch aluminum dome tweeter (50-watt amp). The cabinet weight is 15 pounds, and it measures 7.12x12.25x9.5 inches. Frequency response: 55 to 18k Hz ±2.5 dB; max SPL: 115 dB/pair. Inputs are XLR. Controls include input sensitivity, bass roll-off, bass tilt and treble tilt, and protection circuitry is integral. Recommended subwoofer is the 1092A, and a magnetic shielded version is available as the 1030AM. The 1030AP is $2,196/pair.

First introduced in 1991 as the 1031A (which is still available in black birch veneer), the 1031AP contains an 8-inch woofer (120-watt amp) and a 1-inch aluminum dome tweeter (120-watt amp). The cabinet is constructed from ¾-inch MDF, weighs 26 pounds and measures 10x15.5x11.5 inches. Frequency response: 48 to 22k Hz ±2.5 dB; max SPL: 120 dB/pair. Inputs are XLR. Controls include input sensitivity, bass roll-off, bass tilt and treble tilt; protection circuitry is integral. A magnetic shielding kit is available. Recommended subwoofer is the 1092A or 1094A. The 1031APs cost $3,996/pair.

The 1032A has a 10-inch woofer (180-watt amp) and a 1-inch aluminum dome tweeter (120-watt amp). The black birch veneer finish MDF cabinet weighs 44 pounds and measures 12.5x19.5x11.5 inches. Frequency response: 42 to 21k Hz ±2.5 dB; max SPL: 124 dB/pair. Inputs are XLR. Controls include input sensitivity, bass roll-off, bass tilt and treble tilt; protection circuitry is integral. Options include a magnetic shielding kit, wall-mount hardware and a floor stand. Recommended subwoofer is the 1094A. The 1032AP cost $4,998/pair.

Back in 1978, the S30 was Genelec's first near-field monitor; acceptance by European broadcasters led the company to expand into the music-recording market. Today's S30C integrates an 8-inch woofer, 4-inch midrange unit and ribbon tweeter, each powered by a 120-watt amp via a three-way electronic crossover. The black birch veneer finish MDF cabinet weighs 44 pounds and measures 12.5x19.5x11.5 inches, same as the 1032AP. Frequency response: 43 to 25k Hz ±2.5 dB; max SPL: 122 dB/pair. Inputs are XLR. Controls include input sensitivity, bass roll-off, bass tilt and treble tilt; amp/driver protection circuitry is integral. Options include magnetic shielding, horizontal and vertical cabinet types and a floor stand. Recommended subwoofer is the 1094A. Price of the S30C is $5,600/pair.

The 1037B is another three-way system; components are a 12-inch woofer, 5-inch midrange unit and 1-inch metal dome tweeter. Internal amps are 180-watt, 120 and 120 respectively. Weighing 82 pounds, the black birch veneer finish MDF cabinet measures

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15.75x26.75x15 inches. Frequency response: 37 to 21k Hz ±2.5 dB; max SPL: 128 dB/pair. Inputs are XLR. Controls include input sensitivity, bass roll-off, bass tilt, bass, midrange and treble level; amp/driver protection circuitry is integral. Options include magnetic shielding and floor stands. Recommended subwoofer is the 1094A. Price of the 1037B is $9,498/pair.

The 1091A subwoofer (recommended for the 1029A) contains a single 8-inch woofer driven by a 70-watt amp. The 22-pound MDF cabinet measures 9x20x10 inches. Frequency response: 38 to 85 Hz ±2.5 dB; max SPL: 103 dB. Inputs are XLR and ¼-inch TRS. An internal DIP switch on the amp module engages bass roll-off EQ. Price: $680.

The 1092A subwoofer (designed for use with the 1029A, 1030A and 1031A bi-amped monitors) contains two 8-inch woofers driven by a single amp. The 66-pound MDF cabinet measures 12.5x24x20 inches. Frequency response: 33 to 85 Hz ±2.5 dB; max SPL: 115 dB. Three XLR inputs/outputs are provided for LCR applications. Features include input sensitivity, phase compensation and bass roll-off EQ controls, and bypass; magnetic shielding is optional. Price: $2,150.

The 1094A subwoofer is designed for use with the 1031A through 1037A active monitors in LCR monitoring environments. The 1094A contains one 15-inch woofer in a 110-pound cabinet measuring 18.5x29x24.5 inches. Frequency response: 29 to 80 Hz ±2.5 dB; max SPL: 120 dB. Three XLR inputs/outputs are provided. Features include input sensitivity, phase compensation and bass roll-off EQ controls. Price: $3,699.

Hot House Professional Audio offers five models in its Active Sub-Bass (ASB) line of powered subwoofers. The single 12-inch ASB112 and double 12-inch ASB212 are available now; three more models will be introduced this month, and custom configurations are available.

The smallest model, the new ASB110, contains a single 10-inch woofer and a 450-watt amp in a 90-pound cabinet measuring 18x18x20 inches. The stereo crossover is 24 dB/octave; frequency response: 16 to 110 Hz ±3 dB (custom cabinet tuning to tailor LF frequency response from 16 to 30 Hz is an option); max SPL: 118 dB. Controls include independent high- and lowpass filters, adjustable from 50 to 110 Hz, LF phase invert, bass EQ boost, and LF level. Input and output connectors are XLR and RCA. Price: $2,999.

The ASB112 contains a proprietary Hot House 12-inch woofer and a 450-watt amp and offers the same control electronics and connectors as the ASB110. The 105-pound cabinet measures 18x24x20 inches. Frequency response: 16 to 110 Hz ±3 dB (custom cabinet tuning is an option); max SPL: 120 dB. Price: $3,499.

The ASB115 contains a Hot House 15-inch woofer, a 450-watt amp, and is electronically similar to the ASB110 and ASB112. However, the 145-pound cabinet is designed to serve as a pedestal for near-field monitors and measures 18x35x20 inches. Frequency response: 16 to 110 Hz ±2 dB (custom cabinet tuning is an option); max SPL: 122 dB. Price: $3,999.

The 6208 bi-amplified reference monitor from **JBL Professional** (Northridge, CA) includes an 8-inch woofer and a 1-inch gold/titanium hybrid tweeter mounted on a Multi-Radial™ baffle designed to acoustically align the

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transducers and optimize dispersion. Two amplifiers derive input signal from a 24dB/octave crossover at 2.6 kHz. Weight is 30 pounds, and dimensions are 11.25x17.75x9.5 inches. Frequency response: 60 to 20k Hz ±2 dB; max SPL: 109. Balanced inputs include XLR and ¼-inch, and the unit accepts both -10dBV and +4dBu levels. Price: $998/pair.

KRK Systems offers two bi-amplified, phase-aligned powered monitors, the E8 and the E7. The E8 contains an 8-inch Kevlar woofer and a 1-inch Kevlar tweeter in a six-sided cabinet. Weight is 54 pounds; size is 14.75x17x4.5 inches. Frequency response: 45 to 20k Hz ±2 dB; maximum SPL at 1 meter is 112 dB. Controls include input sensitivity and HF level. Input connector is XLR. Price: $4,295/pair.

The KRK E7 features a 7-inch Kevlar woofer and a 1-inch Kevlar tweeter in a polygonal cabinet similar to the E8's. Weight is 44 pounds; dimensions are 13.25x15x12 inches. Frequency response of 54 to 20k Hz ±2 dB, and maximum SPL at 1 meter is 108 dB. For extended frequency response, KRK recommends the Rok Bottom/KRK subwoofer ($1,495). The E7 system is $3,495/pair.

Mackie Designs entered the powered monitor arena with the Mackie HR824 studio reference monitor, an active two-way design with two 6.5-inch passive radiators in addition to the 8.75-inch polypropylene cone LF driver and 1-inch metal alloy dome tweeter. Each cabinet also contains a 150W LF amp and a 100W HF amp; electronic crossover is a Linkwitz-Riley 24dB/octave model. Weight is 32 pounds and dimensions are 10x15.75x11.92 inches. Frequency response: 45 to 20k Hz ±.5 dB, with -3 dB points of 38 Hz and 22.5k Hz. Peak SPL per pair (music on console at 1 meter) is 121 dB. Rear panel controls modify bass roll-off and HF shelving, and switchable settings compensate for full, half and quarter space placement. An auto turn-on feature allows the monitor to enter Standby mode when no signal has been detected for some minutes. Connectors include balanced XLR and ¼-inch. Price: $1,498/pair.

Meyer Sound Laboratories first introduced its HD-1 High Definition audio monitor in 1989. Containing a 8-inch woofer and a 1-inch dome tweeter driven by 150-watt and 75-watt amps, respectively, the cabinet weighs 51 pounds and measures 12x16x16.5 inches (including clearance for amp chassis and tweeter dome). Frequency response: 32 to 22k Hz ±3 dB (40 to 20k Hz ±1 dB); max SPL: 125 dB. Features include protection circuitry and dual mode amplification; the complementary MOSFET output stage amps operate as Class A at lower levels and as Class AB at high levels. Though not shielded, the monitor design minimizes magnetic leakage. The unit accepts either +4dBu/-10dBV inputs (switchable) on a balanced XLR connector. Price: $5,200/pair.

The HD-2 High Definition Mid-Field monitor contains a 10-inch woofer (2-inch voice coil) and a 1-inch dome tweeter driven by 200-watt and 100-watt amps respectively. The system is available in two configurations, offering a choice of wide (90-degree) or narrow (60-degree) horizontal coverage. The cabinet weighs 70 pounds and measures 14x20.75x16.5 inches, including clearance for amp chassis. Frequency response: 50 to 20k Hz ±1.5 dB, with 3dB down points at 32 Hz and 22 kHz.

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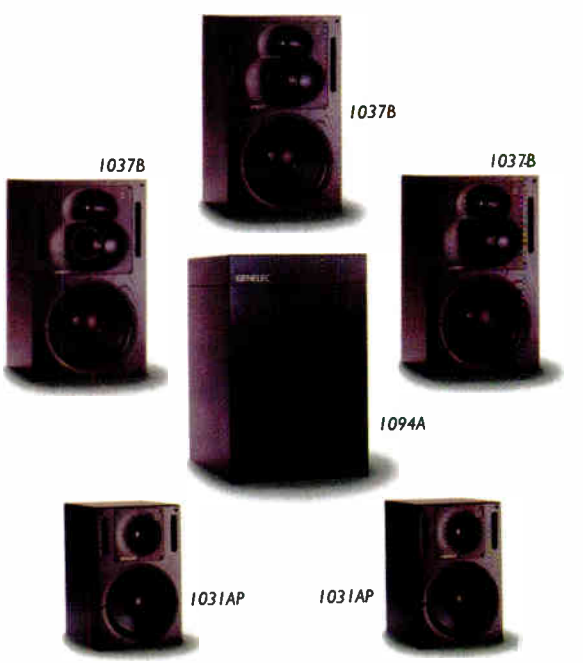

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Maximum SPL is 124 dB. As in the HD-1, features include protection circuitry and dual mode amplification. A magnetically shielded version is available. Input is XLR, either +4dBu or -10dBV. Price: $6,800/pair.

Quested offers two fully shielded powered reference monitors (VS2108 and VS2205) and a companion powered subwoofer (VS1112/VA1112). The VS2108 contains a single 8-inch woofer and a 1-inch ferrofluid-damped soft dome tweeter with two 100-watt amps driving each component; crossover is 24 dB/octave at 1.25 kHz. Weight is 48.5 pounds, and the unit measures 13.5x16x13.5 inches. Frequency response: 55 to 18k Hz ±2 dB; max SPL: 108 dB (C weighted). Input connector is XLR and a rear panel switch selects between +4dBv and -10dBv input levels; controls include switchable LF and HF contouring filters. The unit includes thermal protection circuitry, and a front panel LED indicates power on and clip conditions. A grille is optional. Price: $4,590/pair.

The Quested VS2205 is electronically similar to the VS2108 but contains two 5-inch woofers and a 1-inch ferrofluid-damped soft dome tweeter, and is powered by a 100-watt LF amp and a 50W HF amp. Weight is 29 pounds, and the unit measures 13.5x10.5x11.25 inches. Frequency response: 75 to 19k Hz ±2 dB; max SPL: 108 dB (C-weighted). Price: $3,398/pair.

The Quested VS1112 powered subwoofer is designed to complement the VS2108 and VS2205 full-range monitors and is equipped to be integrated in any surround sound monitoring environment. Containing a single 12-inch woofer driven by a 400W amp, the slope-fronted cabinet measures 17x19.7x23.6 inches. The unit will reproduce a summed mono bass signal from stereo, 3-, or 4-channel inputs. A comprehensive array of rear panel XLR connectors provides inputs and high-pass filtered outputs for Left, Center, and Right channel signals, plus a discrete effects input and a summed mono sub output, allowing for multiple monitoring configurations. Magnetic shielding and a front panel grille are optional. A simplified version of the subwoofer, the VA1112, is amplified but offers only one input and output. Price of the VS1112 is $3,337.

REL by Sumiko offers six powered subwoofer models, at prices ranging from $995 to $8,000. Most include Linkwitz-Riley alignment and all feature REL's proprietary Active Bass Controller (ABC), designed to tune the speaker's output to match the characteristics of any system in any room. Other features common to all models include Neutrik Speakon and RCA input connectors (Storm, Stadium II, Stentor II and Studio II models all have balanced 600-ohm balanced inputs).

The Q100 features a single 12-inch woofer driven by a 100-watt amp, all in a 44-pound cabinet measuring 16x16.5x17 inches. Frequency response: 20 to 120 Hz (6 dB down at 20 Hz). Features include an acoustic suspension system. Controls include gain, phase and crossover adjustment. Price: $995.

The Strata II consists of a single 10-inch woofer, down-firing in a 46-pound cabinet measuring 17x21x12 inches. Amplifier power is 60 watts, and frequency response is 20 to 120 Hz (6 dB down at 20 Hz). Controls include gain, phase and coarse and fine crossover adjustment. Price: $1,195.

The Storm sub-bass system also has a single 10-inch woofer, down-firing in a 66-pound bass reflex cabinet, which measures 17x23x12 inches. Amplifier power is 100 watts, and frequency response is 18 to 120 Hz (6dB down at 18 Hz). Controls include gain, phase and coarse and fine crossover adjustment. Price: $1,595.

The Stadium II sub-bass system has a single 10-inch woofer, down-firing in an 88-pound cabinet. Dimensions are 21x22x17 inches. Amplifier power is 100 watts; frequency response: 18 to 120 Hz (6 dB down at 18 Hz). Controls include gain, phase and coarse and fine crossover adjustment. The unit is available in black or walnut finishes. Price: $2,500.

Spendor offers four powered reference monitors (all feature XLR input connectors). The QT 100 includes a 7.5-inch elliptical polymer cone woofer and a 3-inch soft dome tweeter in a reflex cabinet, powered by a single 60W amp. Cabinet weight is 16.5 pounds, and dimensions are 8x7.5x12 inches. Crossover is active, 24 dB/octave. Frequency response: 70 to 20k Hz ±2.5 dB; max SPL: 103 dB short term, 110dB peaks with music. Pairs are matched to within 0.75dB sensitivity. Price: $1,395/pair.

The SA200 is a bi-amp system with a

6-inch woofer powered by a 130W amp and a 3-inch silk diaphragm tweeter powered by a 60W amp. Cabinet weight is 26 pounds; dimensions: 8.5x15x10 inches. Crossover is active, 24 dB/octave. Frequency response is 55 to 23k Hz ±3 dB; max SPL: 106dB short term, 114 dB peaks with music. Features include HF and LF equalization switchable in 1dB steps, and pairs are matched to within 0.75dB sensitivity. Price: $2,395/pair.

The SA300 is a bi-amp system that includes an 8-inch woofer powered by a 130W amp and a 3-inch silk diaphragm tweeter powered by a 60W amp. Cabinet weight is 37.5 pounds, and dimensions are 10x18.5x11 inches. Features include HF and LF equalization switchable in 1dB steps, preset input gain control (-6 dB to +18 dB) and active filters. Crossover is active, 24dB/octave, Frequency response: 44 to 23k Hz ±3 dB; max SPL: 112 dB short term, 120 dB peaks with music. Pairs are matched to within 0.75dB sensitivity. Price: $3,595/pair.

The SA500 is a tri-amp system with a 10-inch woofer powered by a 240W amp, a 6-inch midrange woofer powered by a 130W amp and a 3-inch silk diaphragm tweeter powered by a 60W amp. Cabinet weight is 97 pounds, and dimensions are 12.5x25x16 inches. Features include HF and LF equalization switchable in 1dB steps, preset input gain control (-6 dB to 18 dB) and active filters. Crossover is active, 24 dB/octave; frequency response: 35 to 23k Hz ±2.5 dB; max SPL: 115 dB short term, 123 dB peaks with music. Pairs are matched to within 0.75dB sensitivity. Price: $6,995/pair.

The Absolute 4P active near-field speaker from **Spirit by Soundcraft** is a bi-amplified design, with separate 100-watt amps for both the 6.5-inch long-throw woofer and the 1-inch ferrofluid-cooled soft-dome tweeter. Cabinet weight is about 16 pounds, and dimensions are 10x16.25x12.25 inches. Crossover is a fourth-order constant voltage Bessel type at 2 kHz and includes time compensation for driver alignment. Frequency response: 40 to 20k Hz. Maximum SPL is 115 dB. The system features stepped input level control, a 40Hz highpass filter and full thermal protection. Price: $999.95/pair.

Tannoy has offered two passive two-way powered monitors available since 1995 (the PBM 8 LM and the PBM 6.5 LM) and recently introduced three new bi-amplified models, the AMS12A, the AMS10A and the AMS8A. Tannoy also offers two powered studio subwoofers, the PS115 and the AMS210A. The PBM 8 LM features an 8-inch woofer and 1-inch tweeter in a rectangular cabinet weighing 23.5 pounds (the attached Limpet amplifier weighs an additional 8 pounds). Dimensions are 10⅞x15¾x14¼ inches, including the amp. Frequency response: 45 to 25k Hz ±3 dB; max SPL: 115 dB. Input is via a Neutrik ¼-inch unbalanced/balanced XLR combo connector. The system operates on either 110V or 220V AC supplies. Price: $1,395/pair. A shielded version is also available for $1,585/pair.

The PBM 6.5 LM features the same Limpet amplifier as the larger PBM 8 LM but offers a 6.5-inch woofer and ¾-inch tweeter in a cabinet weighing 20 pounds, including the attached Limpet. Dimensions are 8½x12⅞x11⅞ inches. Frequency response: 55 to 20k Hz ±3 dB; max SPL: 113 dB. Input is a Neutrik ¼-inch unbalanced/balanced XLR combo. The system will operate on either 110V or 220V AC supplies. Price: $1,075/pair. A shielded version is also available ($1,275/pair).

Recommended subwoofer for both PBM systems is the PS115 powered subwoofer, which extends the PBM systems' frequency response down to 33 Hz. Containing a single 15-inch woofer, the almost square PS115 cabi-

POWERED Reference Monitors And Subwoofers

net weighs 53 pounds and measures 20x18x20 inches. Frequency response: 33 to 130 Hz ±3 dB; max SPL: 114 dB. Inputs are unbalanced RCA. Controls are provided for level and lowpass adjustment (highpass is fixed). Price: $1,095. A shielded version is available for $1,245.

The smallest member of Tannoy's AMS Series is the AMS8A. Featuring a Dual Concentric™ 8-inch woofer with integral 1-inch compression driver, the unit contains an active crossover and two 145-watt amplifiers. Weight is 38 pounds, and dimensions are 12⅞x18⅜x12¾ inches. Frequency response: 40 to 25k Hz ±2 dB; max SPL: 121 dB. LF and HF contour controls are provided. Input connector type is a Neutrik XLR/TRS combo. Price: $3,995/pair. A shielded version is available.

The AMS10A features a 10-inch Dual Concentric™ woofer/1-inch compression driver. Weight of the bi-amped system is 62 pounds, and dimensions are 15x21.5x13 inches. Frequency response: 35 to 25k Hz ±2.5 dB; max SPL: 126 dB. LF and HF contour controls are provided. Input connector is a Neutrik XLR/TRS. Price: $5,995/pair, and a shielded version is available for $6,835/pair.

The AMS12A features a 12-inch Dual Concentric™ woofer with a 1.25-inch compression driver. Weight of the bi-amped system is 85 pounds, and dimensions are 17.75x25.5x16.25 inches. Frequency response: 25 to 25k Hz ±2.5 dB; max SPL: 129 dB. LF and HF contour controls are provided. Input connector is a Neutrik XLR/TRS. Price: $7,495/pair, and a shielded version is available for $7,885/pair.

Recommended subwoofer for the AMS systems is the AMS210A powered subwoofer, which extends frequency response down to 29 Hz. Containing two 10-inch woofers, the AMS210A cabinet weighs 113 pounds and measures 25.5x15x27 inches. Frequency response: 29 to 110 Hz ±3.5 dB; max SPL: 118 dB. An active crossover network offers variable adjustment of high- and lowpass signals. Inputs are XLR and RCA. Price: $2,495, and a shielded version is available for $2,885. ■

Chris Michie is Mix*'s technical editor.*

Specs for audio gear (and transducers, in particular) often bear little relation to perceived reality, and most published loudspeaker specs should be viewed with some skepticism. More to the point, there is really no substitute for a thorough listening test.

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To Woof OR Not to Woof?

A SUBSTANTIAL QUESTION

by Bob Hodas

A number of my room-tuning clients have asked me if they should add subwoofers to their main system. There are three reasons for this trend. One is the problem of the increasingly loud listening levels that some clients tend to work at. Second is low-end loss when a system designed for soffit mounting is placed in free space. Finally, there is the need to hear more deep bass when working on small close- or mid-field monitors. If your studio falls into one of these categories, read on. Let's address the issue of volume first.

Many of my studio clients are complaining that rap projects are destroying their main monitors. Some artists like to turn up the speaker systems until the bass is making their pant legs flap. Of course, most studio speakers are not designed to operate at concert volumes. I just finished tuning a room at Platinum Island in New York where a client is destroying the monitors every three or four days. He has gone through twenty sets of drivers since the project started.

In most cases, a studio owner cannot tell his client how loud to listen. Putting a compressor on the system does not help because the clients complain when they hear it working. The simple solution is to add a subwoofer to the system. This can take a lot of the pressure off of the main woofers and gives the clients enough bass volume so that they do not have to push the whole system so hard. The initial cost to the studio may seem high, but the investment can save money over time. Based on the cost of replacing speakers so often (and a woofer may cost over two hundred dollars to recone), even the most expensive subwoofer system can pay for itself within a year.

For volume problems, I have been successful using the ELF subwoofer system made by Bag End. This system has a lot of versatility in size and setup options. It was developed by Ed Long, who gave us the PZM, the first near-

field speakers, and the concept of time alignment. The Bag End subwoofers come in several speaker sizes with single- or double-loaded speaker cabinets. These boxes are extremely compact because they employ the principles of active electronics to achieve super extended low end down to 8 Hz. They have self-powered or stand-alone versions.

When integrating a subwoofer within an existing monitor system, you want to set the crossover point so that you take some of the strain off the main system woofers. I usually like to set a crossover point at about 80 Hz. This may vary a bit from system to system, depending on speaker location, main system low-end response and room size. By sending everything below 80 Hz to the subwoofer, you can relieve the main system from having to produce the deep rumbling bass that some artists like. These are also the frequencies that can destroy your woofers. You also leave the bass and kick drum punch at 100 to 125 Hz in the main system so that it feels connected to the upper and mid bass.

Remember that it is very important to provide the subwoofer with an amplifier that has plenty of power. Headroom is important, because transient distortion can destroy your speakers. Adding a subwoofer gives you the extra advantage of working the main system amplifier easier as well. You should experience less distortion and clipping overall.

I will tune a room with a subwoofer so that the system is accurate for clients who operate at reasonable volumes. Then I tell the studio owner to give his or her monitor-abusing clients a pot so that they can set the subs at whatever level they desire. It's not about accuracy at that point, it's strictly about volume.

Figures 1 and 2 show a before and after shot of a UREI 813 soffit-mounted in a room. All charts are 24-octave resolution shot with a Meyer SIM® System II. In the upper chart, the trace along the top shows coherence, while the middle trace is frequency response. The lower chart shows phase. Figure 1 shows a severe roll-off at about 53 Hz. Note the bass extension that is capable when a subwoofer is added in Fig. 2.

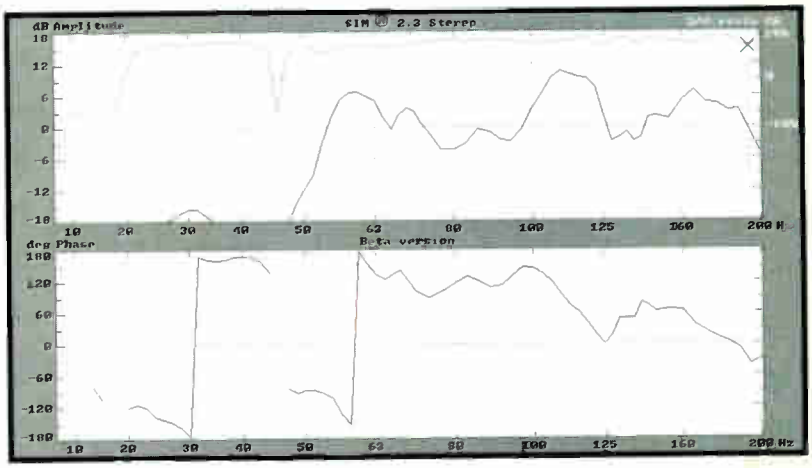

Figure 1: Soffit-mounted UREI 813 without subwoofer. Top chart shows frequency, bottom chart shows phase

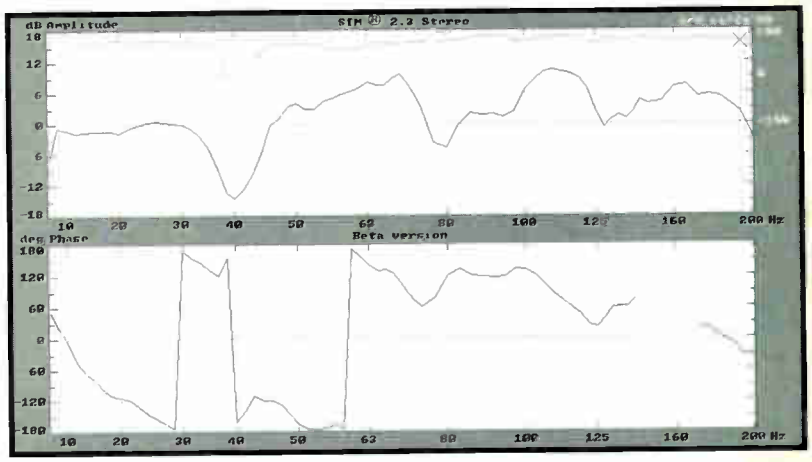

Figure 2: Soffit-mounted UREI 813 with subwoofer. Top chart frequency, bottom chart phase

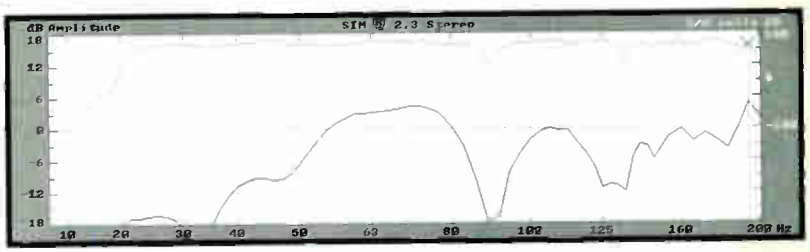

Figure 3: Soffit-mounted UREI 813 without subwoofer

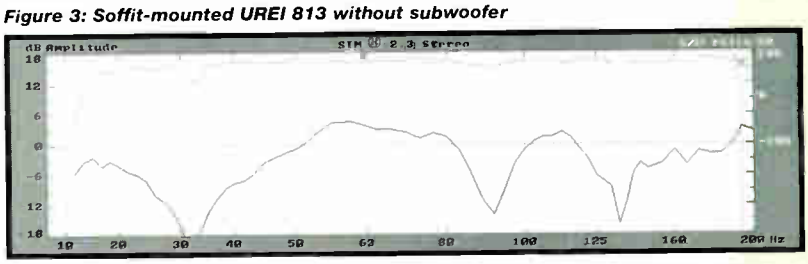

Figure 4: Soffit-mounted UREI 813 with subwoofer. Note same holes in response as Figure 3.

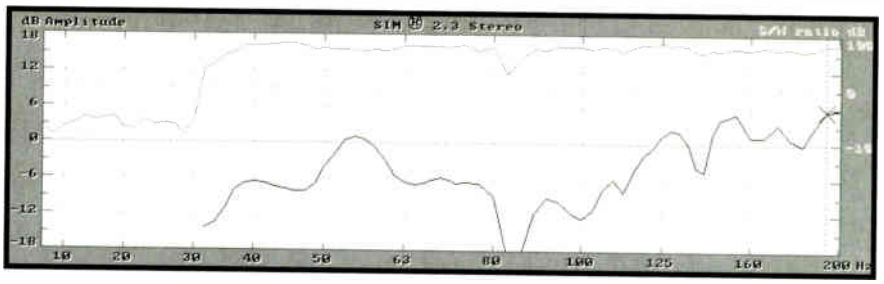

Figure 5: UREI 813 mounted on stands without subwoofer

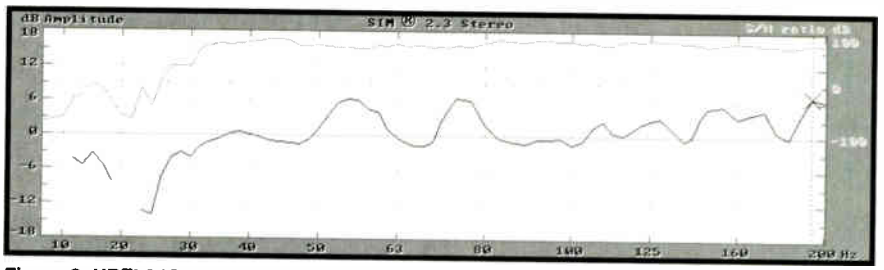

Figure 6: UREI 813 mounted on stands with subwoofer

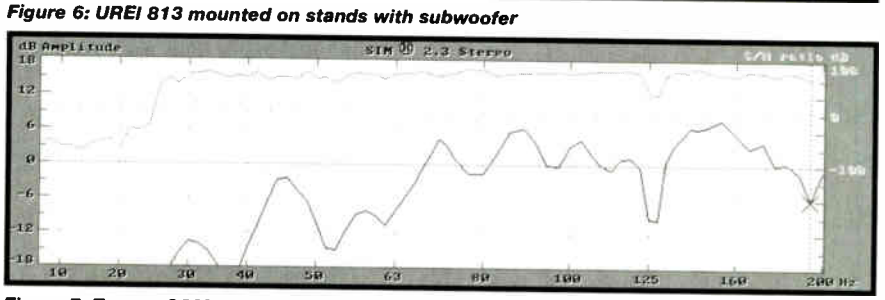

Figure 7: Tannoy SGM 10B close-fields on stands without subwoofer

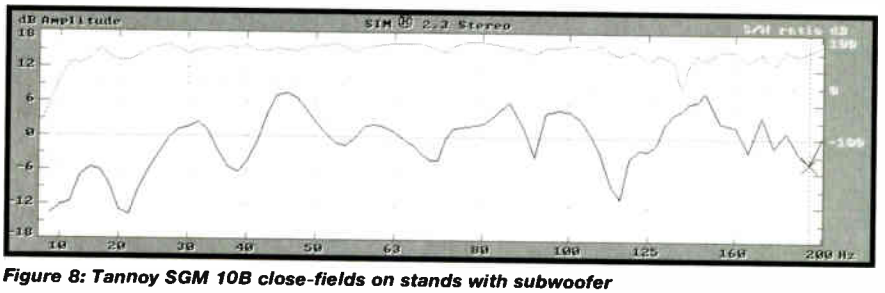

Figure 8: Tannoy SGM 10B close-fields on stands with subwoofer

You can see in the Fig. 2 phase chart that the subwoofer polarity and position are properly oriented, as it integrates perfectly with the phase of Fig. 1. Phase integration of the subwoofer is very important at the crossover.

Figures 3 and 4 show a different room with the same setup (charts are frequency only). An interesting note is that even with the subwoofer, the same room response anomalies exist at 32 Hz, 90 Hz and 135 Hz. You may be able to correct some of these problems if there is enough space to move the subwoofer around in the room to establish an idealized location. Just don't expect your room problems to be solved by adding a subwoofer.

As to the problem of low-end loss, certain monitors were designed to be mounted into wall soffits. By design, these speakers rely on a baffle to reinforce the low end, and they will usually exhibit a severe bass roll-off when mounted on stands with no walls surrounding them. If mounted in free space, these types of speakers can only function properly with the addition of a subwoofer to the system. If I were to equalize the system to make up for the low-end loss caused by improper installation, too much strain would be placed on the woofers. In this situation, we should raise the crossover point so that the subwoofer integrates with the natural roll-off of the main system. As an example, the UREI 813 starts to roll off at 125 Hz in free space. It is necessary to set the crossover that high in order to get the proper response and power out of the system. Figures 5 and 6 demonstrate how well a subwoofer fills in the response.

STEREO SUBWOOFERS

I am a very firm believer in stereo subwoofers. It is a common misconception that we cannot hear bass directionality.

People often say that bass is omnidirectional, and subwoofer room position is not important. I believe this misconception developed because of the way bass is treated when cutting lacquer masters for records. Frequencies below 200 Hz are combined to mono in case there are any low frequency phase problems. Out-of-phase bass would make the lathe-cutting head jump off the lacquer. So for many years we never had a chance to hear stereo bass. With the digital age this is no longer a problem. You can experiment by placing your subwoofer off to one side and see if you can hear its location. I'm sure you will. If you only use a mono subwoofer then it is very important that you place the subwoofer symmetrically between your speakers. Placing the subwoofer off to one side or the other will cause a non-symmetrical response in the left and right speakers at the crossover point. This is based on the uneven distance of the left/right speakers to subwoofer and will require more equalization to balance the system.

For clients with close-field monitors, the subwoofer application is quite different. The issue is not about power but about the ability to hear low frequencies that, if uncorrected, may make their recordings sound unclear and too bassy (see Figs. 7 and 8). Some of the more popular expensive small monitors extend down to 40 Hz, which is sufficient in many cases. But there are quite a few systems on the market with limited bass response. Adding subwoofers to these systems can save having to do major surgery to your mix in the mastering stage.

Film and television composers also need to hear the low bass frequencies in order to get their music right. If space is not a limitation, a stereo subwoofer setup is the best way to go. Along with the ELF systems mentioned earlier, I have tuned a number of rooms with the self-powered Genelec subwoofer systems. The Genelec systems have a switch that allows adjustment of the phase at 90/180/270 degrees. This has come in handy when there is limited space in which to move the subwoofer in relation to the mains. While the bass is not as extended, nor the options as versatile as the Bag End, I have had good success with Genelec in film composers' studios. Both systems can operate in mono or stereo for the subwoofer. Genelec's advantage is that it has a left/center/right crossover with mono summing for those who need to do film work.

Placement of any subwoofer system requires a good analyzer and someone who knows how to use it. Although the subwoofer manufacturers' setup suggestions using tones are valid, the results are crude and I have not seen a studio that set up subs properly without analysis. I personally use a SIM System II which allows me to see a 24-octave resolution linear display of both phase and frequency in real time. This gives fast, accurate results. You want to achieve a linear phase response at the crossover point in order to get the best frequency response. An analyzer that displays phase is a must for this process. The process can be time-consuming and requires trying placement in multiple locations and phase switch adjustments. Sometimes the best results are achieved by raising the sub off the ground, turning it upside-down or even backwards. Moving a subwoofer a mere six inches to a foot can make a significant difference. If there is a rule of thumb, I haven't found it yet. ■

Bob Hodas is a Mix *contributing editor.*

PREVIEW

PRISM SOUND STEREO EQ

Prism Sound (Mountain Lakes, NJ) introduces the MEA-2 precision stereo equalizer, a 2-channel, three-rackspace unit with four separate equalizer sections per channel and stepped controls for accuracy and repeatability. The first in a new range of Maselec Master Series products, the MEA-2 was developed in association with engineer/producer Leif Mases. Frequency-select controls are completely overlapping in pairs, and each channel offers 84 discrete EQ frequencies. In addition to center frequency and boost/cut control, each equalizer section offers five EQ bandwidth selections plus a shelf-only position. I/Os are electronically balanced XLRs. Price is $4,700.

Circle 327 on Product Info Card

SKB MIC STAND CASES

SKB (Orange, CA) offers two new cases suitable for transporting a variety of mic, percussion, lighting and speaker stands. The SKB-4819W ($289.95) is 48x19 inches; the SKB-4810W ($179.95) is 48x10 inches. Both cases meet ATA Cat 1 specs as airline shipping containers and include wheels, recessed handles and lockable latches.

Circle 328 on Product Info Card

CEDAR NR PACKAGES

CEDAR Audio Ltd. (Cambridge, UK) announces two new noise-reduction packages for restoring damaged or less-than-pristine recorded audio. In association with Merging Technologies (Puidoux, Switzerland), CEDAR has developed NR-1, a broadband noise-reduction module for the Pyramix Virtual Studio. The program runs in real time and is available from Merging Technologies for $3,950. CEDAR's latest noise-reduction module, NR-3, runs on the CEDAR ProDSP board and CEDAR for Windows package and can be implemented in any format from two to 16 tracks. Featuring a new user interface and advanced EQ facilities, NR-3 integrates with other CEDAR programs such as Declick and Decrackle. Price is $24,000.

Circle 329 on Product Info Card

NEW HAFLER AMPS

Hafler (Tempe, AZ) has introduced two new amplifiers, the P4000 Trans•nova DIAMOND ($1,199) and the P1000 Trans•Ana ($499). The P4000 is aimed at the studio market and outputs 200 watts per channel into 8 ohms. The design includes Jim Strickland's patented Trans•nova circuitry and his Dynamic Invariant Amplification Optimized Nodal Drive (DIAMOND) driver stage, as found in the Hafler 9505. The P1000 Trans•Ana is a 1U unit designed for critical listening applications and features Transconductance Active Nodal Amplifier (Trans•Ana) topology for stable, linear operation and the NOMAD protection system. Both amps carry a five-year warranty.

Circle 330 on Product Info Card

DUY ANALOG TAPE SIMULATOR PLUG-IN

DUY S.A. (Barcelona, Spain) offers a Digidesign plug-in that simulates the sonic characteristics of analog tape recording. DaD Tape simulates the "sound" of four popular tape recorders (including models from the '60s and '70s) and the most common noise-reduction systems. The software simulates the effects of recording at the three standard analog tape speeds and can round percussive transients as if by tape saturation. DaD Tape is available for Digidesign TDM Bus® and Sound Designer II® and supports Pro Tools 4.0® with automation.

Circle 331 on Product Info Card

DB TECHNOLOGIES ADDS DACS

dB Technologies (distributed by Audio Intervisual Design, West Hollywood, CA) has introduced two new digital-to-analog converters. The dB Technologies MDA820 modular multichannel D-to-A converter offers 2-, 4-, 6- or 8-channel conversion. Each pair of channels can operate asynchronously, and a narrow-wide lock setting allows varispeed usage. A fully configured 8-channel system costs about $8,000, a 4-channel system half that. The dB Technologies DA924 is a 96kHz 24-bit D-to-A that accepts either 16- or 24-bit inputs and accommodates both current 40-50kHz sampling rates and the new 80-100kHz standards.

Circle 332 on Product Info Card

PREVIEW

FOSTEX HARD DISK RECORDER/EDITOR

Fostex Corporation (Norwalk, CA) announces its D-160 16-track removable hard disk recorder/editor. Supplied standard with a removable 2.55GB hard drive, the unit can accommodate 30 minutes of 16-track recording (one hour of 8-track). An additional eight "virtual" tracks are available, and editing functions allow a full 16 tracks of ADAT information to be transferred and edited in sync. Features include ±6% vari-pitch, selectable 44.1 and 48kHz sampling rates, individual track arming on a slave machine and a Chase Function that enables the D-160 to slave to any recorder/sequencer. Optical I/Os include a selectable stereo S/PDIF port and an ADAT Digital Interface. D-sub 25-pin balanced I/O connector and TC/Sync timecode card are optional. Price of the base D-160 is $3,995.

Circle 333 on Product Info Card

CUSTOM CONSOLES FOR YAMAHA 02R

Sound Construction (Nashville, TN) offers custom drop-in console housings for the Yamaha 02R digital mixer. These furniture-grade housings are constructed with a solid oak finish; the three-piece console frames feature 36 rack spaces (12 above, 24 below), laminated work surfaces and wheels. A single 02R custom console costs $1,795, a double 02R frame is $2,250. Additional rack space companion pieces, priced from $275 to $475, allow customizing the system to fit any production environment.

Circle 334 on Product Info Card

TASCAM DUAL DAT RECORDER

Tascam (Montebello, CA) introduces the DA-302 dual DAT recorder, a dual-transport digital recording and dubbing unit. Features include external control I/O for multiple unit operation and continuous record capability that permits up to eight hours of continuous stereo recording. High-speed dubbing allows for fast duplication within the machine, and an Append feature allows complete dubbing from any start point. S/PDIF digital I/Os on each deck allow for simultaneous independent record and playback, and AES/EBU output is selectable. Balanced analog I/O is available with the optional LA-D302 kit. Price is $1,999.

Circle 335 on Product Info Card

LIQUID AUDIO INTERNET MASTERING TOOL

Liquid Audio (Redwood City, CA) is delivering its Liquifier Pro™ audio mastering tool. Designed for the creation of files that can be downloaded from the World Wide Web and played via the Liquid Music Player (available free from www.liquidaudio.com), Liquifier Pro encodes copyright data in the music and includes automated database functions. Other features include waveform editing, format and sample rate conversion, audio preview at all modem speeds, and optional presets that can automatically determine the best compression settings for any digitized music file. Price is $995. Liquid Audio also announced the availability of its Liquid Music Server ($20,000), a turnkey secure server solution that can deliver Dolby-encoded audio and media over IP networks.

Circle 336 on Product Info Card

SYMETRIX DIGITAL VOICE PROCESSOR

The 628 Digital Voice Processor from Symetrix (Lynnwood, WA) combines the functions of a mic preamp, 20-bit A/D converter, parametric EQ, compres-

PREVIEW

sor/limiter, expander/gate and de-esser in a single-rackspace unit. Front panel rotary knobs allow real-time parameter adjustment, and users may select from 11 factory presets or create and store up to 117 custom presets. Analog outputs provide either line-level (+4dBu) or mic-level (–40dBu) output. AES/EBU or S/PDIF digital outputs are switch selectable; the unit operates at 32, 44.1 or 48kHz sampling rates. Price is $1,199.

Circle 337 on Product Info Card

MULTI-DESK PRO SYSTEM

The Multi-Desk Pro system from Middle Atlantic Products (Riverdale, NJ) is designed to support and conveniently position a wide range of audio and computer equipment and full size keyboards. The MDP-79 Multi-Desk measures 79x32-inches (WxD), and can be expanded to a 50-inch depth with the 79x18-inch MDP-OB overbridge. In normal use, the overbridge can be set at one of ten positions above the working surface and can support heavy video and audio monitors. Additional components in the Multi-Desk Pro system include a 32-inch-deep, 13-space rolling rack (MDP-R13) and a 23-inch deep, 24-space sloped studio rack (MDP-SR24). Prices start at under $1,000.

Circle 338 on Product Info Card

CORRECTION

The April Preview item on Apogee Electronics' Session Tools studio software listed incorrect features: At this time, the software does not address scheduling or equipment lists as stated.

HOT OFF THE SHELF

DAR's new version of SoundStation Gold. The integrated digital post-production editing system combines the DAR touch-screen with the Mix Controller fader surface, which offers full dynamic automation. Call (UK) 44/1372/742-848 or fax 44/1372/743-532...**New Frontier's SURGE-X Series Mode Surge Suppressors** now meet the new Federal C.I.D. Standard and passed Grade A, Class 1 and Mode 1 tests. Call 215/862-9344 or fax 215/862-0270...**The Muscle Fish Audio Information Retrieval (AIR) DataBlade®**, allows users to query an Informix database and find similar sounds according to objective and useful criteria. Searches like "find all the clips that sound like this one" are possible, and the SQL interface allows for third-party application development. Call 501/486-0141, fax 510/486-0868...**The DMS-1 Dropout Monitor System from G & W Produkte (Berlin) provides comprehensive error rate monitoring for Panasonic DAT machines.** The microprocessor-based hardware upgrade uses RS-232 and RC-5 ports to display or print Error rate, A-time, track numbers and times. Call or fax 44/49/30-612-6104...**Wave Mechanics Pure Pitch** is a real-time, formant preserving pitch shift processor for Pro Tools. The plug-in can modify pitch without changing the original vocal character, automates pitch correction, and an expression control can animate dull material. Call 201/728-2425 or fax 201/728-2931...***Careers in Audio*, published by the Audio Engineering Society**, is a brochure introducing the various branches of audio-related science and industry. It describes possible careers in each, and lists further informational resources. Call 212/661-8528, fax 212/682-0477 or visit www.aes.org...**Sypha announces the first edition of *The Internet for Broadcasters***, a trade annual containing technology and management articles, case studies and a directory. Price is $29.95. Call (UK) 44/181/761-1042, fax 44/181/244-8758 or visit www.mandy.com/2/sypha.html...**NetWell Noise Control's new line of Acoustic Fabric Panels**, hardboard compressed Fiberglas sound panels are available in more than 30 colors. NRC values are 1.05 and LF absorbency is nearly 46% at 125 Hz. Panel sizes range from 1x4 feet to 4x10 feet. Call 612/939-9845, fax 612/939-9836...Analog Devices offers the **HUSH® single-ended stereo noise reduction system on a chip**—the SSM2000. Combining variable filtering and expansion with an adaptive noise threshold detector, the chip can reduce overall noise by up to 25 dB. Call 617/329-9106 or fax 617/329-1241...**Power Technology debuts Auto Panner and Tremolo FX•Plug-Ins™** for the DSP•FX system. The two will be included in all DSP•FX systems and are available free to all current DSP•FX system owners. Call 415/467-7886, fax 415/467-7386 or e-mail dspfx@dspfx.com. ■

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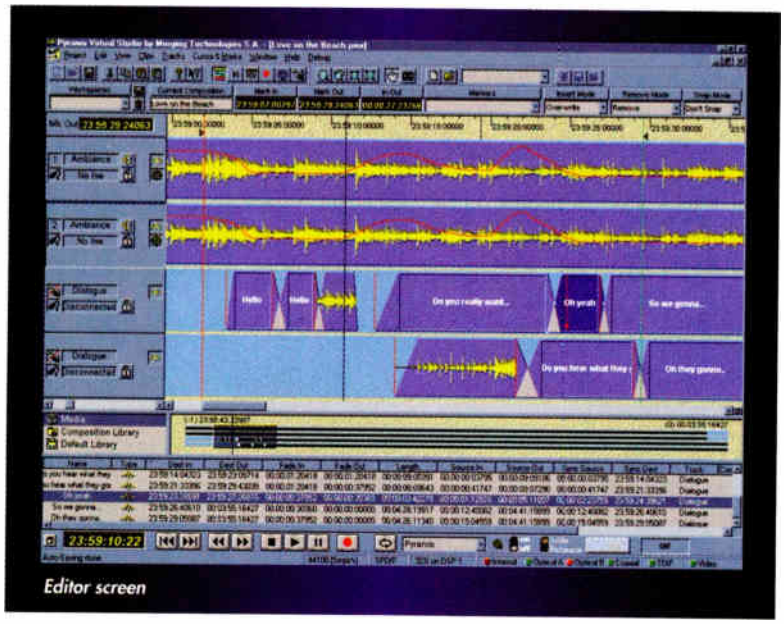
MERGING TECHNOLOGIES PYRAMIX

DIGITAL AUDIO WORKSTATION


Editor screen

Pyramix Virtual Studio, from Swiss manufacturer Merging Technologies, is a full-featured digital audio disk recorder and editor that offers a high degree of system integration between various production tasks. Recording and production facilities looking for basic recording and editing functionality, excellent audio quality, and clear and succinct screen display of all system modes should check out this remarkable product.

Comprising a plug-in Kefren DSP board and software for Windows 95/NT 4.0 operating systems, Pyramix offers 8-track hard disk recording, sample-accurate editing, automated multichannel digital mixing, digital special effects (currently including EQ, dynamics plus delay; others to come), hardware-based networking and CD-R mastering functions. All of this comes in a package that sells for around $7,500; a companion Pentium 166MHz PC with suitable hard drives, modem, CD-ROM drives, SCSI interface, keyboard and mouse is also available from Merging Technologies for just under $5,000. (You are free, of course, to shop for your own PC-based controller/CPU.)

The Pyramix package is unique in its functional depth and processing power. Even while I was reviewing the system, several software and hardware upgrades were being finalized (see sidebar); the bottom line is that the firm is committed to maintaining the power and speed advantages currently built into Pyramix.

MT has a distribution agreement with Panasonic. According to a fall '96 announcement, Panasonic BTSC will distribute Pyramix through 30 or so of its key dealers in the continental U.S. With the backing of such a large sales channel—not to mention the synergy with Panasonic's MDA-1 ADAT-format digital multitrack and DAT products—Merging Technologies has acquired a big brother/sister on the pro audio playground. (And just in case you were wondering, as I was, about the connection between all of the on-screen graphics depicting various pyramidal structures and the name "Kefren," it seems that the latter is the second largest of the great pyramids in Egypt.)

BY MEL LAMBERT

HARDWARE AND SOFTWARE SYSTEM COMPONENTS

Pyramix Virtual Studio comprises the Kefren multi-DSP, ISA bus processing board and a series of flexible software modules that can be customized to suit your specific application. Internal data processing is to 32-bit floating-point precision, with hard disk recording between 16- and 32-bit resolution. The multitasking graphical interface runs under Windows 95 or NT 4.0, with direct support for ADAT and S/PDIF optical I/O formats, plus Tascam TDIF format. In essence, Pyramix is intended to provide real-time recording and playback from a maximum of eight hard disk tracks, together with mixing of additional ADAT-, TDIF- or S/PDIF-format digital signals. (And these latter ports can also be used to input data to the hard drives prior to editing, processing and mixing.)

No A-to-D nor D-to-A converters are included on the master Kefren boards; all entries into and out of the digital domain are intended to be performed in a less hostile environment than the internals of a PC chassis. It is left up to the user to provide the necessary number of input and output converters, or purchase the recently announced Sphynx analog and AES/EBU-format digital I/O interface for the Kefren board. (And most studios have at least one DAT recorder and maybe an ADAT or DA-88 that could be pressed into service for either input conversion or monitoring.) Rear panel connections on the Kefren board include a pair of optical input ports that can be switched between S/PDIF 2-track or ADAT 8-track formats; a pair of optical output ports also switchable between S/PDIF and ADAT formats (for direct lay-off of up to eight disk tracks); and a pair of co-ax S/PDIF I/O ports.

Optional plug-in boards are available for accommodating eight

—CONTINUED ON PAGE 212

C M - 7 0 0

Shown with accessory shock mount.

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EQUI=TECH ET2R
SYMMETRICAL POWER SYSTEM

For the past three years, a quiet revolution in AC power has been taking place in professional audio and video. The Symmetrical Power System, introduced by Equi=Tech in Oregon, takes normal power supplied by the local utility and balances it, providing two 60-volt AC legs, one positive, the other negative, with 120 volts AC between them. Balanced AC lowers audio and video noise levels and increases dynamic range.

Equi=Tech was started by Martin Glasband to manufacture Symmetrical Power Systems. Interested readers should check out Glasband's November 1994 *Mix* article "Lifting the Grounding Enigma," also available on Equi=Tech's Web site (www.equitech.com). Glasband is also the author of National Electrical Code Article 530 G, which allows the use of balanced AC for audio and video systems in the U.S.

Since the beginning, 120-volt American AC power has been unbalanced, with a 120-volt hot wire, a 0-volt grounded neutral wire and a 0-volt ground wire. Symmetrical power transforms this into two 60-volt hot wires that are in phase with each other and out of phase with respect to ground. This is referred to as Common mode, and, just like in audio circuits, this balanced topology cancels noise. With unbalanced AC, reactive currents are reflected by equipment onto the neutral and ground, causing ground noise. Furthermore, unbalanced RF filter caps leak voltage to ground. With balanced AC, reactive currents are inversely phased with respect to ground so they cancel each other out, and balanced filter leakage is inversely phased, so the ground stays clean.

Our Field Test, at Portland's Key Largo club, used two of Equi=Tech's 20-amp rackmount ET2R Symmetrical Power Systems ($1,529 list). Six models of rackmount systems, with capacities of 10, 15, 20, 30, 40 and 50 amps, are available in a three-space, heavy-duty chassis. The smaller-capacity units plug right into standard 15 or 20-amp 120-volt wall outlets, while the larger units plug into standard 250-volt receptacles. Weight varies from 30 to 108 pounds, as capacity is determined by the size of the precision-wound toroidal power transformer. For permanent installation, Equi=Tech manufactures prefabricated wall systems with 5, 7.5 and 10KVA capacity. Equi=Tech also sells custom transformers up to 333 KVA and provides engineering services.

The two 20-amp ET2Rs were simply mounted in the bottom of the equipment rack, and each plugged into one of two 20-amp wall outlets. The Carver monitor amps, Soundcraft console and Symetrix processing we were using ran on one ET2R, and the Stage Accompany mains ran on the other, as they had higher peak demands, especially the subwoofer amps. No special wiring was needed. Aside from rackmounting, changing over consisted of taking a moment to re-plug the AC cables. Equi=Tech's mottoes are "ground everything and lift nothing" and "throw away your ground lifts." All equipment was simply plugged into the Equi=Tech units. The ET2R acts as a 20-amp power strip that isolates from the grid and immunizes local problems.

Equi=Tech's technical bulletin "How to Do an Audio System Noise Floor Test" ships with the units and provides a helpful outline for verifying performance. Equi=Tech guarantees customer satisfaction and encourages users to test and verify the improvement to their sound system's specs. For testing, we used a Neutrik A2-D audio test system. Self-noise on the Neutrik A2-D was measured at 108 dB and at 111 dB, weighted 20 to 20k Hz, and running it on balanced power made no difference in this measurement.

One important note is to let all equipment under test warm up for at least half an hour, during which time its circuitry is stabilizing and the noise floor can be seen to slowly drop several dB. We first sent a 1kHz tone at +4 to establish a unity gain structure, important to accurate noise floor measurements. Then, with all components warmed up and the tone off, measurements could be made. The improvement on any single channel was about half of a dB. With 32 channels and effects returns summed, a typical mix scenario, the measured noise floor dropped by 12 dB unweighted and 6 dB weighted 20 to 20k Hz, showing elimination of garbage both within and outside of the audio spectrum. An additional 3 dB

BY MARK FRINK

of improvement, unweighted, was seen on the power amp outputs for a total improvement in system noise floor and dynamic range of 15 dB unweighted.

While you have your November '94 *Mix* out, also check out Zelniker and Taylor's "Insider Audio" piece on digital jitter. The term "jitter" refers to timing errors in a data stream, which can manifest itself as digital errors or system crashes. Jitter is a cumulative effect and can increase in chains of equipment. Our measurements of the output of a single Panasonic SV-3800 DAT showed that running on balanced AC cut jitter in half, from 6 nanoseconds average down to 3 ns. The peak jitter level was improved threefold from 18 ns peak down to 6 ns peak. Equi=Tech says this is probably due to balanced AC eliminating ground noise at digital audio data stream frequencies (which is at about 700 kHz for 16 bit/44.1k audio).

It is possible to run only a portion of your P.A. on balanced power. Most noise in a P.A. system is generated by the mic preamps and summing amps of the console, the processing and the backline. Leave the power amps on unbalanced AC and simply lift Pin 1 at the input of the amps to keep the amps from contaminating the rest of the system using balanced AC.

Does balanced power make a difference for live sound? Bottom line: After the Equi=Tech units were installed, the club's lead engineer Billy Triplet commented: "Thanks for the quiet system, it's a real pleasure to mix on it."

Later that week, one visiting engineer commented that his band recorded a live album in the club several years previous that had been all but ruined by the noise that was captured on tape. With the advent of 20- and 24-bit digital, the noise floor of new systems is low enough to reveal a multitude of hums and buzzes. The technical department at Equi=Tech has a plethora of success stories they are happy to share that illustrate the power of symmetrical AC technology to eliminate audio problems. Does this make an audible difference for live sound? Have you ever had to listen to an in-ear mix with a low-level buzz all night? Have you ever had the ballad ruined by noises you spent your entire dinner break trying to track down? The only complaints come from the occasional guitar players that miss the reassuring hum coming off their backline.

Equi=Tech, Box 249, Selma, OR 97538; 541/597-4448; fax 541/597-4099. Web site: www.equitech.com. ■

SUMMIT AUDIO MPC-100A

MIC PREAMP AND COMPRESSOR/LIMITER

Among the myriad tube signal processors and preamps that now flood the market, Summit Audio's TPA-200B mic preamp and DCL-200 dual compressor/limiter have become studio mainstays. Summit now ups the ante with a Swiss Army knife sensibility, adding the MPC-100A combination tube preamp and compressor/limiter to its line.

Introduced at the Los Angeles AES show in 1996, the Summit MPC-100A has the same slick, retro chassis design of its predecessors and adds some unique features. The single-channel unit's primary functions include a tube preamp stage followed by a compressor/limiter section. Input configurations are diverse, including mic, line and a hi-Z DI front panel jack. The microphone input features Jensen input transformers with a maximum input and output level of +25 dBU.

Three switches in the preamp section select line/phantom-powered mic input, phase reverse and a -20dB pad. In the compressor/limiter section, two three-position toggle switches select among slow, medium, and fast attack and release times. The VU meter display is selectable between gain reduction or output level; a fourth toggle switches the compressor/limiter section in/out, or links the unit to a second MPC-100A for stereo operation.

Yellow LEDs in both sections indicate preamp and/or compressor vacuum tube saturation; blinking LEDs indicate soft clipping. The rear panel has separate XLR mic and line inputs, +4dB balanced and -10dB unbalanced outputs, and a balanced sidechain input jack for external control signals.

For DI applications, a red "loading" control pot optimizes input impedance, panning between 10kΩ and 1MΩ, a function that proved useful with bass and electric guitar. A larger, red detented knob selects between 12 gain positions suitable for a variety of dynamic and condenser mics, with a seven-step blue shaded region specific to the hi-Z input.

I tested the preamp section with a variety of microphones, varying in quality from an AKG C1000S to a Neumann U87. In all cases, the preamp section provided a clear, transparent quality to the material, which included voice, classical and electric guitar, flute and percussion. Tube designs are often noted for their warming characteristics, and the MPC-100A provides those traits without dramatically coloring the tone. Overall, this preamp section allows one to audition the sound of the instrument (including the inherent qualities of the microphone and its position in the room) and incrementally increase the gain without being held hostage by any tonal idiosyncrasies.

In the spirit of previous units, the compressor/limiter section features Summit Audio's old-style large black knobs for Gain, A.C. Threshold, Slope and Output. The Threshold level setting decreases as you turn the knob counterclockwise; Slope, representing compression ratios from 1:1 to 1:10, increments clockwise. Operation is straightforward, with the Attack and Release switches providing dramatically different changes to source material. The main liability of several compressors in the market is a lack of musicality. The MPC-100A suffers from none of those problems and remains a friendly schizophrenic—subtle if you want it to be, or a hell-raiser for suitable occasions.

The MPC-100A is also a bass player's dream. The DI input's loading control exercised a subtle effect on the frequency width, and I used the detented gain control to arrive at a pleasing, round tone. Switching the comp/limiter section in-line allowed me to dial in full, punchy qualities that cut through my mixes. The product documentation provides some sample settings for common instruments, which are good launching points to start exploring the unit.

Aside from qualms about the designation of Pin-3 as hot, I found little to complain about and enjoyed the nice touches that Summit has added. Besides providing balanced and unbalanced outputs that can be used simultaneously, the unit's overall output gain control allows you to tweak the output after both stages and still retain the sonic quality of overdriven tubes. This facility makes the MPC-100A a uniquely flexible tool.

Priced at $2,400, the MPC-100A is a tad steep for some. But given the performance and flexibility of the unit, you'll have a hard time finding anything that can match it. Summit Audio has delivered the goods again.

Summit Audio, P.O. Box 1678, Los Gatos, CA 95031; 408/464-2448; fax 408/464-7659. ■

BY ALEX ARTAUD

Alex Artaud is editor-in-chief of the Spanish-language edition of Mix.

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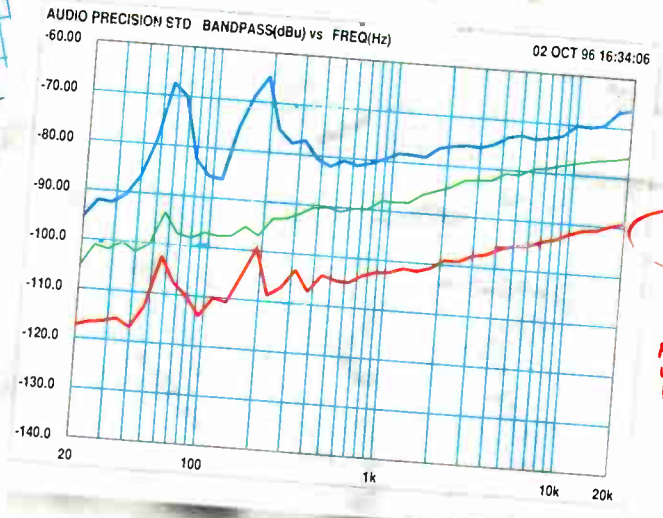

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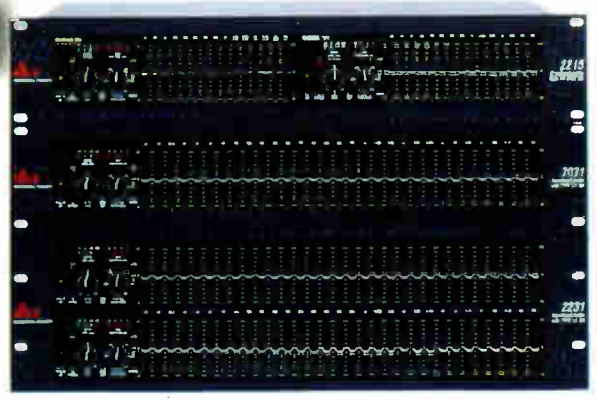

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MACKIE DESIGNS ULTRAMIX

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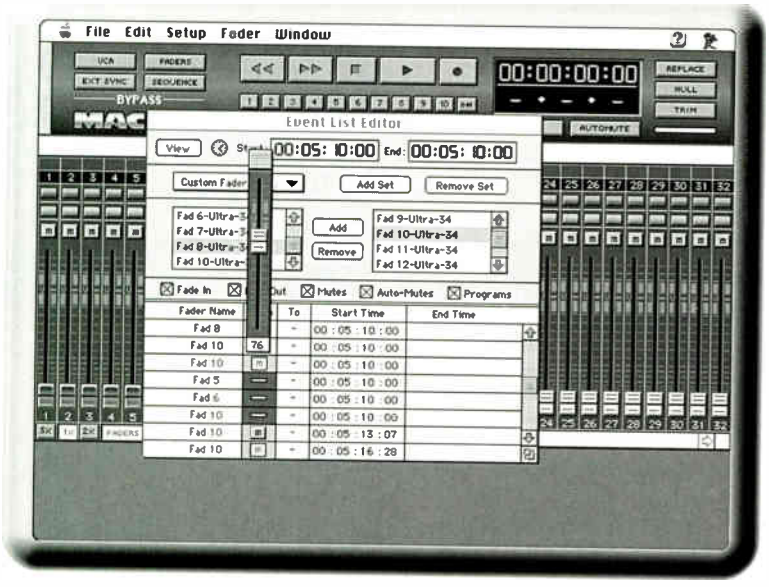

UltraMix's main automation screen

Out front of Dance Home Sound in Emeryville, Calif., we were taking a breather after a long mix. We had just gotten a seven-plus-minute song to pulse and sparkle across its entire jazzy length, and the take was down on DAT. Which was no mean feat: The band had chosen to overplay parts, which necessitated multiple mutes and a tricky fade at the end. And this was just one of several mixes with similarly demanding situations we had done that day. Yet, strangely, even with all the muting and fader moves, we were still upbeat and ready to do another mix. We agreed that it all would have been much more difficult to pull off without automation.

The UltraMix Universal Automation System from Mackie Designs (Woodinville, Wash.) is a high-quality automation system that will work as an adjunct to any mixer with insert points, or some other send/return path. The UltraMix automation system consists of three individual components: UltraMix Pro automation software, the Ultra-34 automation interface, and the UltraPilot control interface. The software runs on both the Macintosh and Windows platforms ("computer not included," notes the humorous manual), and incorporates Opcode's OMS 2.1 MIDI utility. The elegance of this automation system is due to the fact that signal at the insert point of the patchbay is converted to MIDI data, which can then be manipulated either in real time, or offline, without any noticeable coloration of the sound.

UP AND RUNNING

At Dance Home, we ran the UltraMix Pro software on a Macintosh IIci with an 040 turbo processor and 32 megs of RAM. We found the installation and setup were straightforward, as it should be for anyone who is Macintosh-literate. One hitch was uncovered when our original sync box only produced SMPTE timecode, not MIDI Time Code (MTC). UltraMix only reads MTC, and cannot convert SMPTE. After swapping out that box for a JLCooper Translator Pro Sync, we were halfway to an automated mix. Or at least we had a time clock on the screen. During setup, we simply followed the on-screen instructions, which prompted for our specific MIDI device manufacturer. It was like installing any other Mac software—intuitive and easy.

UltraMix can import and play standard MIDI files, so you don't have to run a sequencing program if you want to mix virtual tracks. It also has an event editor to manipulate all automation information offline.

BY HENRY SMITH AND LISA RICHMOND

THE COMPONENTS

The circulation system of the UltraMix is the 68-point patchbay, the Ultra-34. This patchbay is the actual point on the system where the VCA signal gets converted to MIDI. The Ultra-34 looks like a standard patchbay on steroids—a two-rack-space, powered patchbay for 32 channels and L/R main bus automation. It has TRS ¼-inch connections front and back, and four indicator lights: Power, MIDI, Bypass and Local. Bypass and Local also have on/off buttons. The Bypass button allows the patchbay to function as a normal insert bay, such as during tracking.

The software allows for .5x, 1x and 2x views, which allows the user to toggle between 32 and 16 tracks at a time on a 15-inch screen (the core system provides for 32 channels, plus a 9-fader master section). There are meter displays with toggling windows. The mixer view does not expand to the entire size of the screen, but instead only occupies two-thirds of the screen, which we found somewhat annoying. Faders are indicated by a solid fader, which indicates actual output, and "glass faders," which indicate the controller's current

position.

The UltraPilot hardware is essentially a MIDI fader controller and is a little larger than a laptop computer. It has 16 100mm faders (which are the same size and have the same feel as the faders on the Mackie 8-bus boards) and toggling "soft" keys that give the user access to multiple functions and banks of faders with a shift key. The software allows color-coded fader grouping, which can be accessed through the UltraPilot, but the software only "sees" across banks of 16 tracks at a time. Care should be taken at the beginning of a mix to account for this by putting all vocals on bank one, tracks 1-16, for example, or by keeping all the drums on the same bank for ease in mixdown.

The UltraPilot also has a transport control for multitracks, DAWs and external sequencers, plus autoloop controls, and ten autolocate points. In general, the software duplicates all of the hardware functions, meaning that there is nothing you can't do with the mouse, if that is your preference.

MUTES AND THE MUTE MODE

One of the most powerful features of UltraMix automation is the ability to mute unneeded channels, which, among other things, reduces the build-up of track noise. As a primarily analog studio, we were very interested in maximizing the muting capabilities of the UltraMix, and were disappointed by the results. The muting process in general is a bit cumbersome, and we were unable to use the one feature that has been touted as exclusive to the UltraMix, Automute, at all on our first session.

The Automute feature mutes a channel until signal is present, at which point it moves the unmute back 50 ms, and voila! the signal is present with no loss of attack. (Don't we wish all our gates could do this?) Automute offers three levels of sensitivity to allow the automatic muting of channels with no signal. However, we were unable to get a level of sensitivity that was close enough to cover all the tracks, and ended up using mute mode and doing it manually. Automute would be a better feature if there were infinitely adjustable levels of sensitivity programmable for each channel.

Unfortunately, we found even the manual mutes to be clumsy: We wanted the ability to hit a mute in any mode, similar to the way the solo and mute buttons function on the Mackie boards. However, mute mode has to be enabled. Sometimes the mute buttons themselves didn't engage. We got around this by simply bringing the fader down to zero on the track in replace mode. The reason for this "Mutes in Mute mode only" is that the mutes simply override existing faders data, so if you do want to unmute a channel, the moves you may have already written still exist.

THE THREE MIXING MODES

UltraMix has three different main modes, plus Mute and Rehearsal modes, that enable the user to perform different types of passes. In Rehearsal mode you are practicing not just the move, but the mode, too. First-time automation users may find this terminology (typical of most automation packages) confusing initially but will grow acustomed in no time

Replace mode is perhaps the most straightforward mode, and allows you to write real-time fader moves to disk.

The modes allow you to conceptualize your fader moves in a couple of different ways, so you can be assured of not overwriting critical fader information. And if you really screw up, there's a single level of undo. It won't dig back to that long, overwritten solo in the sky, but it will take you back to where you just were, at least.

Replace mode is perhaps the most straightforward mode, and allows you to write real-time fader moves to disk. We used this mode the most, in part because this is the most similar mode to manual mixing. It is also the best way to rough out a mix—after setting unity gain on the board, we would set up the head of the song and run a mix how we felt it, riding the vocals, pushing the solos, letting the various instruments swirl up out of the mix as we felt it at the time. UltraMix tracked all the fader moves flawlessly.

Getting into the ergonomics of the other modes, however, was not quite as intuitive. Null mode is very much like Replace, except that it has the added function of not dropping into Record until your glass fader crosses the solid faders, at which point recording begins in what would be Replace mode. The recording stops when you punch out of either Master Record or the track.

Trim mode does not replace the existing fader data, but instead adds or subtracts from the pass you have already made. It keeps the complex underlying moves in their existing relationships, and either adds level or subtracts from the whole passage. We used this mode the least, but it's probably best used for automating a group of tracks, like background vocals. Another application might be a guitar solo that has the right pattern and timing of moves, but is just a bit loud.

GETTING MORE FROM ULTRAMIX

Though UltraMix doesn't automate EQs and pans, there are some ways you can work within the system to make it yield the same results. By splitting tape channels to two available board channels and panning them hard right/left, you can use fader automation to create the timing and balance of the pan. The same process could be used to EQ a particularly troubled area of a track.

Mackie UltraMix Automation is a very powerful tool for studios looking to implement automation economically with their current console. We encountered some awkwardness with the ergonomics of the system before we became used to using the hardware controller to drive the software, and felt that the mute function was somewhat awkward. But with no noticeable coloration of the sound, and a price-point under $3,000, UltraMix offers excellent value in an automation system that is compatible with virtually any mixing console.

Mackie Designs, 16220 Wood-Red Road NE, Woodinville, WA 98072; 800/890-3211, fax 206/487-4337; e-mail: sales@mackie.com. ■

Lisa Richmond is the owner and chief engineer at Dance Home Sound in Emeryville, Calif. Henry Smith is DHS' studio manager, and a bass player and composer.

NIGHTPRO EQ$^{3\text{-}D}$

STEREO AIRBAND EQUALIZER

I've been a fan of the Night Technologies (now NightPro) EQ^{3} AirBand™ analog equalizer since it debuted at the 1993 AES show. The silky sound and absence of phase distortion are impressive, but its $3,000 price was problematic. Now NightPro offers the EQ$^{3\text{-}D}$, a stereo 6-band program equalizer with variable-frequency AirBand control at an affordable $995.

Before getting started, you should know a few things about the EQ$^{3\text{-}D}$: All of its frequency bands have an extremely wide bandwidth, which is preset at approximately 2.5 octaves wide. The first four bands (10, 40, 160 and 650 Hz) are a ±15dB peak/dip type; the 2,500Hz band is a ±15dB boost/cut shelving filter, and the "air band" is a boost-only shelving EQ, with selectable center frequencies of 2.5/5/10/20/40 kHz.

There is considerable interaction between the bands; for example, a +12dB boost on the 40 and 160Hz bands results in a +18dB boost at 100 Hz, rather than two distinct peaks at 40 and 160 Hz. This interaction allows a substantial amount of latitude in creating different EQ curves. A small boost on a lower band combined with a larger boost on the next higher band will create a gently rising boost followed by a sharper cutoff, as opposed to a bell curve response.

Few products in pro audio are easier to use than the EQ$^{3\text{-}D}$. The single-rackspace front panel has color-coded frequency-control knobs, with EQ-bypass switches for each channel. Status LEDs are provided for power on, peak overload and EQ in/out. The back panel has balanced XLR channel inputs/outputs; the internal power supply handles voltages from 100 to 250 VAC. Inputs and outputs are electronically balanced (pin #2 hot) with internal jumpers for unbalanced use.

In order to achieve the EQ$^{3\text{-}D}$'s $995 price point, NightPro omitted some of the $3,000 original's features, such as transformer balancing and detented controls. In most production environments (studio or live sound), transformers aren't necessary. And though the original EQ^{3} had detented controls for repeatable settings, all gain adjustments required that the user separately set two concentric controls for coarse and fine adjustments, which wasn't conducive to fast-paced applications, such as sound reinforcement. By substituting simple ±15 dB pots for the concentric controls, the EQ$^{3\text{-}D}$ actually speeds up operation, keeps things simple and reduces the unit's purchase price. Not a bad trade-off.

Over a period of months, I used the EQ$^{3\text{-}D}$ in just about every studio situation, including tracking and mixing a pop album, restoring archival tapes and as an in-line enhancer running tape dubs. However, with its wide 2.5-octave bandwidth, the EQ$^{3\text{-}D}$ is not the equalizer for all applications. For example, if you need to notch out 60-cycle hum or the buzz of cheap stompbox effects, a parametric equalizer would be a better choice. But in applications requiring broadband tonal shaping, either on mixed program material or on individual tracks, the EQ$^{3\text{-}D}$ was excellent.

The EQ$^{3\text{-}D}$ does have a few minor quirks. A center detent on the gain controls would be nice. And knobs on the first five bands are marked with a one to five scale, while the controls actually operate over a ±15dB range. Fortunately, neither of these affect audio performance, and in practice I tend to determine most equalization settings by listening, rather than by strictly relying on certain parameters.

I particularly liked the EQ$^{3\text{-}D}$'s air band on lead and background vocals, and a small amount (2-3 dB boost) of "air" at 10 k had a nice effect, increasing intelligibility while adding clarity and a natural sheen—without being harsh or brittle. On cymbals and acoustic guitars (6- and 12-string), an air band boost added sparkle and allowed the instruments to cut through the mix. The 650 and 2.5k Hz bands brought vocals and solo instruments up in the mix without edginess, and the 40 and 160Hz bands can emphasize or de-emphasize bass without being overbearing. And whether you want to remove background rumble or add some serious thump to the low end, the 10Hz sub-bass band is just the ticket.

One of the best things about the EQ$^{3\text{-}D}$'s wide 2.5-octave bandwidth is that phase shift is minimal—typically about 10°—so imaging remains tight in stereo applications. Frequency response was virtually flat, down less than 1 dB at 100 kHz.

When the EQ^{3} came out I was impressed. Now, offering greater versatility and the same smooth, musical equalization in a compact, easy-to-use package at one-third the price, the NightPro EQ$^{3\text{-}D}$ is set to become a familiar fixture in the outboard racks of studios, broadcast chains and touring rigs everywhere.

NightPro Intl., 1680 West 820 North, Provo, UT 84601; 801/375-9288; fax 801/375-9286. Web site: www.nightpro.com. ■

BY GEORGE PETERSEN

Mix® Magazine Presents

Great Recording Facilities of Los Angeles

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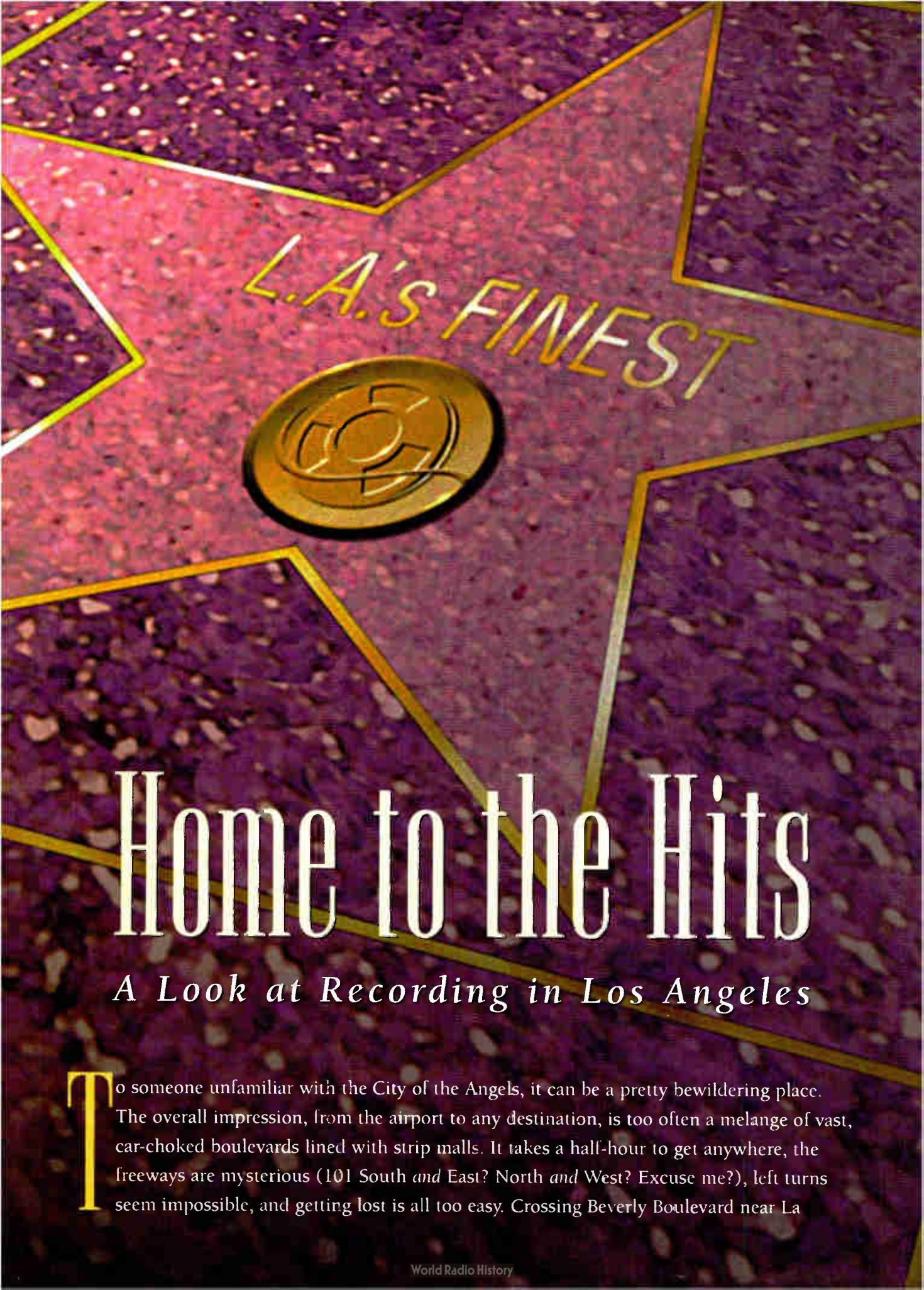

Home to the Hits

A Look at Recording in Los Angeles

To someone unfamiliar with the City of the Angels, it can be a pretty bewildering place. The overall impression, from the airport to any destination, is too often a melange of vast, car-choked boulevards lined with strip malls. It takes a half-hour to get anywhere, the freeways are mysterious (101 South *and* East? North *and* West? Excuse me?), left turns seem impossible, and getting lost is all too easy. Crossing Beverly Boulevard near La

Cienega as a pedestrian is a death-defying feat that can rattle even a New Yorker.

Still, L.A. is a pop culture Mecca studded with shrines—from the Capitol Tower and A&M's gates to CBS Television City, Warner Bros., Paramount and Disney. From Sinatra to the Beach Boys to The Eagles to Guns N' Roses, L.A.'s music business and creative community rival Hollywood's film industry in scope, bucks and influence. In the '50s it was Bing Crosby, Nat King Cole, the glory days of Sinatra and the label-owned recording studios. The '60s brought the Beach Boys, The Doors and Buffalo Springfield. In the '70s came the singer/songwriter explosion—The Eagles, Linda Ronstadt, Joni Mitchell, Jackson Browne—who grew creatively and professionally in clubs like the folksy Troubadour and the hard-rockin' Whisky A Go-Go. The success of those musicians and the cadre of engineers and producers who developed along with them led to the rise of independent recording studios and to the massive changes in the way the record business operated: When record labels realized just how much money was to be made selling their records, those artists gained the power to record wherever they wished. So independent studios began opening in the '70s, forcing the dwindling number of label-owned studios to become competitors. Business was good, and remained so as the '80s brought more Platinum—Michael Jackson, Quincy Jones, Lionel Richie and the R&B scene; Guns N' Roses, the Red Hot Chili Peppers and rock—and more studios, large and small.

Today, Los Angeles has more great studios than any city in the world, and probably more studios period, considering that these days every other garage in the San Fernando Valley holds somebody's personal facility. This plethora of studios has, of course, made for fierce competition. It's made doing business more than tough, but it's also kept standards high. The question of how to not just survive but to prosper has been answered by L.A.'s finest: the studio owners who have carved out their own unique situations, imbuing each facility with a special character and personality.

Los Angeles has paid more dues than most cities, from the 1992 riots, to the '93 and '96 fires and, worst of all, 1994's earthquake. And all the while, studio owners have been fighting the effects of a nationwide recession that dragged on longer in California than in the rest of the country. Yet, somehow, the Left Coast still manages to be first with everything—on the leading edge with trends from food to cars to fashion—and the first to face problems and come up with solutions. (For example, L.A. is known for the worst smog *and* the most severe controls on auto

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Cover: Working from a sketch and a transparency of a star on Hollywood's Walk of Fame, illustrator Steve Epstein created the line work, typography and tape reel icon of our cover image in Adobe Illustrator 6.0. He used KPT Vector Effects to enhance the dimensionality of the icon, and rendered the final composited piece in Adobe Photoshop 4.0. **Art Direction:** Michael Zipkin, Lucid Design. The Walk of Fame, a licensed trademark of the Hollywood Chamber of Commerce, is used with permission.

and manufacturing emissions.) So it's no surprise that the big battle over home recording studios was fought in L.A. The battle heated up in the late '80s, and there were casualties on both sides. But today even the most militant have come to terms; a truce has been declared and studios have settled into their own niches. The major studios have adapted and grown, each in its own way; the best always do.

Today, the mantra for nearly all commercial L.A. studios is "client services," a feature that, while not unique to Los Angeles, is certainly a major drawing card. Matt Wallace, a producer/engineer originally from the San Francisco Bay Area (credits include The Replacements, Faith No More and new artists Dog's Eye View and Chantal Kreviazuk), now calls Los Angeles home. "There are two primary reasons for recording in L.A.," he observes. "Number one, of course, is the selection of musicians and studios. Number two, the support here is phenomenal. I've done projects in various places around the country, including San Francisco and Nashville, and except perhaps for New York, there's nowhere like it. You can get any piece of gear any time of night or day, and almost any musician you might want within a 12-hour period. The studios here in L.A. will basically take care of anything for you—if you need a piece of gear, equipment picked up, instruments rented, deliveries, they'll handle it. That allows you to get in there and work, and be unemcumbered with details. And the breadth of what you can get is amazing: If you need a 1956 Tweed amplifier serial number X, it's like, 'Yeah, we got it, what else do you need?' And then they'll bring over two so you can compare them. If you need a percussionist, you've got a choice of several who are outstanding and who can be there within an hour."

With studios settling into their niches and standards uniformly high, L.A.'s recording community has been helped by a stabilized rate structure and a deeply held optimism about the future of music recording. While the battle over rates is never-ending, they've inched back up, and studio owners and managers are determined to keep them there. As for the optimism, it stems from knowledge, experience and dedication, and a belief that the worst is over. Overall, L.A.'s jammin' these days. There are more records than ever being made, and Platinum music-makers continue to thrive here, from Beck to Dr. Dre to Sheryl Crow. There's a boom in soundtrack projects and plenty of post-production work around as cable channels and other media outlets demand more series, made-for-TV movies, film scores and commercials. Everybody's working hard; those old jokes about "laid back LaLa Land" were probably never true, but have you noticed that nobody even makes them anymore?

British engineer Tim Palmer, known for his work with David Bowie, Sponge, Pearl Jam and Robert Plant, recently moved to Los Angeles, and he sums it up quite well. "I love it here," he says. "It's one of the most conducive places to work that I've known. For a start, it's so easy to get out and see bands. When I used to live in London, going to concerts was a bit of a chore, but here it's easy, there's so much going on every night. And of course, some of the best studios I've ever worked in are here. Then, the weather's great, the food is good—all around L.A.'s just a marvelous place where you can mix work, rest and play." ●

Construction by Peterson LaTouf

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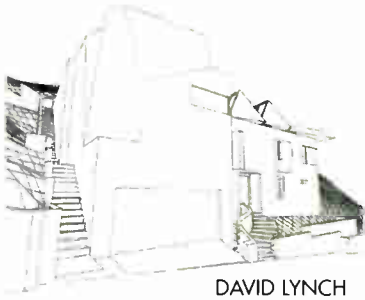

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What's new in L.A...

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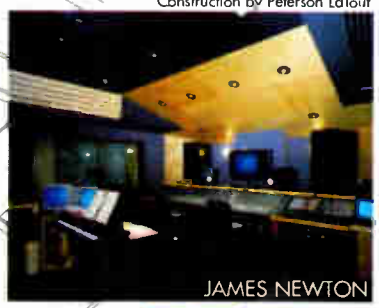

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A&M Recording Studios

The A&M Recording Studios complex occupies an historic site in the heart of Hollywood. Founded as a movie lot in 1918, it was home to Chaplin Studios, where Charlie Chaplin made 17 films. In 1953, it became a television studio where the *Superman* and *Perry Mason* series were taped. In 1966, A&M Records purchased the facility.

In the ensuing 31 years, A&M Studios has become known worldwide for its artist-friendly reputation. Although constantly upgrading and staying at the forefront of recording technology, the facility has never lost its relaxed atmosphere and its sense of being part of an artistic community. Now comprising five rooms and six mastering suites, the complex has recently undergone a major facelift, including the addition of a 96-channel Euphonix CS3000M in Studio C.

Each room features a blend of the best of the old and the new, offering clients use of an impressive microphone collection and a vast selection of new and vintage outboard gear. All studios are equipped with dual analog 48-tracks and custom A&M monitors. Each studio also has its own private lounge and bathroom, and all have access to six live chambers, along with 16 exquisitely tuned EMT plates.

Studio A is a spacious tracking room fitted with a custom Neve 4972 console (one of only three specially designed by George Martin and Rupert Neve for Martin's Air Studios), featuring remote-controlled outboard mic preamps, toroidal transformers throughout, Flying Faders and a unique hybrid technology that makes it one of the finest sounding consoles in the world. Studios B & D are SSL tracking and mix rooms, with large recording areas. B is outfitted with a custom A&M SSL 6056 E with G series EQ; D has a custom A&M 4072 G Series. Studio C has just completed renovation and now features the Euphonix and 5.1-channel surround mixing. The fifth studio, called The Mix Room, boasts a custom A&M SSL 6072 E/G Series desk. Engineer/producer Bob Rock, a regular client, says, "The Mix Room is my favorite room to mix in anywhere in the world. I love the sound of the console so much that I tried to buy it from A&M for my own studio, but they wouldn't sell."

A&M's six mastering suites, which are headed by chief mastering engineer Dave Collins, are an example of the attention to detail and commitment to audio quality that are the trademarks of the entire facility. Collins, who has been with A&M for ten years, has designed systems that carefully integrate vintage and cutting-edge equipment while maintaining the shortest, and therefore purest, signal paths. The main room, where such hit albums as Soundgarden's *Superunknown* and Madonna's *Evita* soundtrack were mastered, features both vacuum tube and solid-state tape playback, as well as a custom A&M console built without any relays, coupling capacitors or transformers. All wiring is solid core, with silver plating used exclusively for contacts. Monitoring is through a choice of Class A or vacuum tube amplification.

"Our staff is well-known for their extremely knowledgeable and gracious services," says studio manager Ron Rutledge. "We at A&M feel that by staying on top of technology and combining that technical expertise with a friendly atmosphere, we are able to cater to any artists' recording, mixing and mastering needs. When you work at A&M Recording Studios, you are considered part of our constantly growing family."

Studio Specs

Studio Owner: A&M Records. **Studio Manager:** Ron Rutledge, assistant studio manager: Bob Bottonus. **Studio Dimensions:** Studio A: 38x39x20 w/3 isos; Studio B: 20x30 w/2 isos; Studio C: 14x21; Studio D: 28x34x18 w/2 isos. **Mixing Consoles:** Studio A: custom Neve 4972 52x24x32 with Flying Faders; Studio B: SSL 6056 E/G; Studio C: 96-in Euphonix CS3000M w/48 moving faders; Studio D: SSL 4072 G w/E Series EQ; The Mix Room: SSL 6072 E/G. **Tape Machines:** Each studio: Studer A800 MkIII(2); Studer A320 2-track; ATR 102 2-track (2); ATR-104 4-track (2); Panasonic 3700 DAT; Sony 7010 timecode DAT; A&M proprietary A-D/D-A converters. **Signal Processing:** One of the world's largest selections of microphones and outboard equipment; call for complete listing. **Monitors:** Studios A & B: Custom A&M/Van Paaff w/TAD components, Studio C: Custom A&M; Studio D & The Mix Room: Custom A&M/Augspurger. **Of Special Interest:** Six live chambers; 16 EMT plates.

A&M STUDIOS

a PolyGram company

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Capitol Recording/Tower Mastering

Upon entering Capitol Recording Studios in Hollywood, one encounters a long corridor hung with historic photos that serve as a hall of fame for both this legendary three-room facility and for the recording industry itself. Built in 1956 by the three founders of Capitol Records, the gallery chronicles the very beginnings of the modern era of popular music, starting with the February 22 session for Frank Sinatra's *Tone Poems of Color*, with Sinatra conducting the orchestral arrangements of Nelson Riddle. The early days of the modern studio industry are there, as well, illustrated by the orchestral-sized studios, spacious control rooms and eight live echo chambers, designed by Les Paul, that are still in use.

However, Capitol Recording is by no means a museum. Since 1956, its rooms, technology, personnel and reputation for service have been in constant demand by artists from Dean Martin, Liza Minnelli, Barbra Streisand and Sinatra through contemporary musicians of every genre, including Dwight Yoakam, Iggy Pop and the Meat Puppets. Producers who have called Capitol home are as legendary as the facility itself; they include Phil Ramone, Al Schmitt, Jimmy Bowen, Nelson Riddle, Pete Anderson, David Foster, Quincy Jones, Elliot Scheiner and Don Was.

"I'm a client here, too, so I know what people look for in a world-class facility," explains Michael Frondelli, vice president of Capitol Recording and producer and/or engineer of acts such as Van Dyke Parks, Crowded House, Keith Richards and Oingo Boingo. "People come here not just because of the history but because during that history, many, many great records were made here. That capability for greatness is literally part of the studio, and it's a studio that was designed right from the start to accommodate the needs of artists."

Over the decades, Capitol has maintained the same technological edge it opened with. Two Neve VR Series consoles offer modifications that significantly enhance their flexibility and sound, and a classic Neve 8068 provides fully discrete sonic operation. The entire facility is linked fiber-optically, and EDNet transmission allows two-way recording and monitoring so that Capitol operates on what Frondelli calls "a global basis." In addition, Capitol is fully equipped for film and television scoring and post-production, and Studios A and B can open to form a single 2,500-square-foot space.

Tower Mastering is one of the world's leading mastering facilities, featuring one of the best staffs and technology packages available. And while Tower Mastering is a separate business, it is completely integrated into the Capitol facility, allowing fully integrated services from tracking through mastering and—via EDNet—multiple-location remote monitoring of mixes and masters.

"This is a completely integrated, full-service facility, one that can handle any level of project and do so in a way that puts the artist, the producer and the engineer first," says Frondelli. "It stays true to its original intention in that regard, and that's what we've based our philosophy for the future on, as well."

Studio Specs

Owner: Capitol Records; **Manager:** Paula Salvatore, studio manager, Michael Frondelli, VP of Capitol Recording; **Engineers:** Charlie Paakkari, Peter Doell, Darin Thompson, John Hendrickson, Steve Genewick, Eric Cowden, Pete Papageorges (manager, Tower Mastering), Kevin Reeves, Ron McMaster, Bob Norberg (mastering engineers), Mark Chaleck (digital mastering engineer). **Dimensions:** Studio A control: 25x25; studio: asymmetric (1,600 sq. ft.), 3 iso booths. Studio B control: 20x22; studio: 33x31, 1 iso booth. Studio C control: 22x20; iso booth: 10x6. Two lacquer mastering studios, Neve mastering consoles; 6 editing suites. 4 w/ EDNet and Sonic Solutions systems with U3P 24-bit/96 kHz, 1 cassette/CD/DAT duplication suite; **Mixing Consoles:** Neve VR60 w/Total Reset; custom Class A Neve 8068 32x16 w/expanded patchbay, Neve VRQ 72 w/4 stereo bus outputs—all consoles w/Flying Faders automation. **Tape Machines:** Studer A827-24 (2); Studer A820 (2), Mitsubishi X-880 w/Apogee filters, Ampex ATR-102/104 (3), Panasonic SV-3500/3700 DAT, Sony 1630, Sony DMR-4000, Sony PCM-9000. **Signal Processing:** AMS DMX 15-80S, AMS RMX 16, TC Electronic 2290, Eventide 949 (2), Lexicon Prime Time, ITI EQ, Pultec EQP-1A (3), Neve 31081 mic pre/EQ rack, Telefunken LA-2A (2), LA-3A and 1176LN, Fairchild 660 stereo compressor. **Monitors:** Custom Waterland TAD, custom Augspurger-TAD, Yamaha, Tannoy. **Of Special Interest:** EDNet, Keystone ISDN, DG Systems, extensive vintage microphone collection, DVD 5.1 surround mastering capability.

Capitol STUDIOS

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EDWARD COLLER

The Complex

Over the past two decades, The Complex Studios has not only adapted to change, it has learned to anticipate it. And that's what has kept this three-studio/two-sound stage/three-edit suite facility at the cutting-edge of sound since its founding in 1979. Designed by Jack Edwards and co-owner George Massenburg, The Complex was started as a joint venture between Massenburg, Earth, Wind & Fire and Columbia Records. Both Massenburg and EW&F used The Complex's original two main studios and soundstages as home base for their own companies and productions—including those with Little Feat and Linda Ronstadt, who became enamored of The Complex's large, ambient recording spaces and unique technology, such as its two 48-input GML consoles (the only ones in the world).

As The Complex grew in size and sophistication, it maintained its classic status, continuing to be a sought-after venue for major record and—thanks to its two large soundstages and ADR/Foley capabilities—film sound projects. A new audio mixing/editing suite, equipped with an SSL Scenaria and a specialized 5.1-channel surround sound mixing system, is now on line, further enhancing the studio's sound-for-picture abilities.

But The Complex is undergoing yet another stage in its evolution. Under the guidance of general manager David DeVore (producer for REO Speedwagon and other acts) and consultant/systems integrator Maurice Leach (in conjunction with his company Leach Telecommunications), The Complex has brought its technology and expertise to bear on the new frontier of DVD, including surround for music projects, film and video. One of the first services the facility offered is the ability to reconfigure mono and stereo soundtracks from existing films into a Dolby Digital (AC-3), Pro Logic-compatible surround soundtrack, something that they are doing at a rate of approximately 50 films per month. Combined with services such as high-speed ISDN lines for remote ADR, overdubs and final mix approval, The Complex's technology remains ahead of the cutting edge.

The client roster has kept pace, as well: music for films such as *That Thing You Do* and *Austin Powers*, as well as ADR for IMAX productions and a new project with Mel Brooks and Carl Reiner; television audio for hit shows like *The Simpsons*, *Baywatch Nights* and *King Of The Hill*; and records for a combination of contemporary hitmakers and classic artists such as Jewel, Elton John, David Bowie, Guns N' Roses and Stewart Copeland.

"But as well as offering a wide range of services, we're all very service-oriented," observes DeVore. "We understand the different needs and requirements of music, post-production, advertising and film clients, and we've made a philosophy of giving every client the highest level of service in the business."

Studio Specs

Owner: Makoto Iida; **Manager:** David DeVore, General Manager; **Engineers:** Bob Lavivita, ADR/mixer; Chad Blinman, ADR/recording/mixing; Michael Maltioli, composer/sound design; David DeVore, recording/production; Leach Telecom; tech support; **Dimensions:** Studio B control: 20x25, studio: 24x22 w/12x16 iso, Studio C control: 20x26, studio: 20x26, Studio D control: 16x18, studio: 8x12 iso; **Mixing Consoles:** 48-input/72-mix channel GML 7900 (2), SSL Scenaria, SSL ScreenSound (2), Spectral DAW (2); **Media Storage:** Studer 827 (2), Ampex ATR-124 (2), Tascam DA-88 (2), several Ampex 2- and 4-tracks; **Signal Processing:** Fairchild, GML, EMT, AMS, Yamaha, Lexicon and numerous others, large selection of tube microphones; **Monitors:** Musserburg 4-way system w/tube amps on top end and Bryston on mids and lows; custom Tannoy 5.1 surround; assortment of close-field monitors. **Of Special Interest:** Yamaha C-7 grand piano w/MIDI forte, full video production and editing capabilities.

the complex studios

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thecomplex@earthlink.net

Encore Studios

It takes experience and talent to make the day-to-day operation of a studio seem effortless; Encore Studios in Burbank has both. Now in its tenth year, Encore was founded in the historic Kendun Recorders complex, a hub of the thriving R&B scene created in L.A. by such artists as Quincy Jones, Rufus, Stevie Wonder and Barry White. In the intervening years, Encore has managed to maintain that tradition while also broadening its appeal and client roster to include pop, rock and country artists and producers. "We've been able to successfully house many different kinds of music here," says owner/manager Darryl Caseine. "We service a melting pot of musical styles, from sessions for Tom Braxton and Boyz II Men, to Shawn Colvin, Whitney Houston, Dwight Yoakam, k.d. lang and the Dave Matthews Band."

Caseine brings much of the experience that went into making Encore such a smooth operation. "I've seen the business from every side," he explains. "I've been an engineer at both large and small facilities, and as an artist's representative I've been a studio client. I also worked in A&R administration at CBS Records. I have empathy for all aspects of the project." That empathy forms the basis for an understanding of what makes a great studio. First and foremost, says Caseine, is staff. "Our people—the traffic manager, the assistants, everyone—are as important as our consoles and digital multitracks. We're particularly known for the quality of our second engineers—we have some of the best in the business."

Although Encore was designed primarily to be a mix facility, with console and equipment acquisitions reflecting that direction, many classic albums have been recorded in Studio B, including a Grammy winner for Anita Baker and projects for Lionel Richie. Both rooms feature SSL consoles; in B is a 76-in 4000 G, and in A a 72-in 4000 G/L. Encore is in every sense a user's facility, evolving over time with considerable input from its many clients. For example, Studio A's control room design had the expert assistance of master engineer Barney Perkins; producer/engineer Tom Lord-Alge, another regular client, helped design Studio A's SSL console, requesting 36 E Series EQ modules and Ultimation, making Encore the first studio in L.A. with factory-installed Ultimation.

"We try to fill everybody's needs," says Caseine, "supplying them with personalized parking spots, the kind of food and drink they like — whatever it is they need. We keep that information on file. We also have a gym, a Jacuzzi and showers. Clients can work out, or just take a break and relax in the sun on the patio and then freshen up and get back to work. Everything here is geared to make clients feel at home."

Spacious, relaxed and inviting, Encore is the kind of place where you can combine business with pleasure. "Besides our local projects, we have numerous regular clients from out of town, like Teddy Riley and Jerry Harrison," comments Caseine. "These producers and artists don't need to work in L.A., but they want to. The bottom line is: This is where you have to come to do business. You can go to the labels, see your attorney or manager, and do your mixing at the same time."

Studio Specs

Owners: Robert Andreoli and Darryl Caseine, **Manager:** Darryl Caseine, studio manager: Lorie Leach, traffic manager, **Engineers:** Gary Starr (chief engineer), Milton Chan, Mauricio Iragorri, Claudius Lumar, Paul Naguna, Joe Wadick, **Dimensions:** Call, **Mixing Consoles:** Studio A: 72-input SSL 4000G w/Ultimation, Studio B: 76-input SSL 4000G, **Tape Machines:** Sony 3348, Studer A827 (2), Studer A820 (1), Studer A820 1/2 inch (2), Ampex ATR-102 1/2 inch (2), Studer A80RC 1/2-inch (2), Studer A80RC 1/4 inch (2), Panasonic DATs (4), **Signal Processing:** Effects: AMS DMX-S, RMX 16, EMT 140 tube reverb, Eventide H3000, 2016, Lexicon 480L, 224X, 300, EQ: API 550, Focusrite, GML, Neve 1065, Summit, Pultec, Compressor: Aphex Cominator, Drawmer 1960 tube, dbx 160, 160X, SSL Stereo, Inovonics Summit, Teletronix LA-2A, UREI 1176, Gates/De-essers: Aphex, dbx, Drawmer, **Monitors:** Studios A&B: Augspurger NW horn w/TAD woofers, Tannoy Super Gold 3GM 10B, Yamaha NS-10s, Auratones, **Of Special Interest:** Avalon mic preamps, Yamaha 9-foot grand piano, kitchen, lounge w/VCR and satellite TV, gym, Jacuzzi, video games, pinball, patio, showers

Encore Studios, Inc.

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BRIAN LEATART

Mad Dog Studios

After 16 years of turning out great music from a cramped Venice storefront studio, Michael Dumas and Dusty Wakeman last year opened a 6,000-square-foot facility in Burbank. The new stylish, very private and conveniently located Mad Dog Studios features spacious control rooms, a 1,000-square-foot recording room with three large iso booths, a full kitchen and ample secure parking. In the same complex, and set up with tielines to the control rooms, is a 40x60-foot soundstage for film and video shoots, as well as for album preproduction and live music recording.

Owners Dumas and Wakeman are both musician/engineer/producers whose credits include Dwight Yoakam, Jim Lauderdale, Lucinda Williams and Reacharound, among many others. Co-studio managers Astrid Young and Mark Harvey also bring recording experience to the facility—Young is a successful singer/songwriter who has worked with Neil Young and Heart, and Harvey is an industry vet who has managed major studios in both New York and L.A. All that hands-on experience gives Mad Dog its special cachet.

"We know what you need and where you need it," says Dumas. "From years of recording at our own and other studios, we've learned what's important: when we built this place, we put a lot of thought into everything. We know the little things matter; for example, the iso booths all have high ceilings, and there are 1/4-inch cable feeds through all the walls so that you can run cables easily from the control room to amps and speakers in the studio. The headphones all have their own 8-channel mixes. And, of course, all the wiring is impeccable."

Impeccable could also describe Studio A's Neve 8108 console, extensively refurbished with all active patchbays eliminated and all mic preamps replaced by Jensens. "We're constantly working to keep the signal path as clean as possible," comments Wakeman. Newly opened Studio B is outfitted with a Trident Series 80 console and a 16-channel Pro Tools system, and, with its high-ceilinged trapezoidal iso booth, is particularly suited to overdubs, voice-overs, ADR and post-production.

A lot of live band projects are recorded at Mad Dog, and great microphones are a priority. The selection includes Neumann tube 67s, a U-47, AKG C-12s and a C-28. Dumas and Wakeman are also mic preamp connoisseurs; among their collection are units by Hardy, Demeter and Bellari. Classic instruments are also available, including a Yamaha C7 grand piano, a Wurlitzer piano and a Hammond B-3 with Leslie. Great guitars and amps (Silvertone, Vox and Fender) are part of the package, as are other vintage items, including the Optigon optical disc player (circa 1969). The adjacent soundstage boasts an in-house P.A., a lighting grid and production offices, and has recently been the site of projects for Sony Pictures, Country Music Television and Interscope Records.

At Mad Dog Studios, the staff understands the details that really make a difference, both in what you hear and in how you feel while you're recording. Recent clients Little Richard, Dwight Yoakam, Don Grusin, Pete Anderson and ABC Television can attest to the comfortable atmosphere and high-quality results that the facility provides. "We're always looking for ways to make things better," says Wakeman. "We're committed to making a great place to record music."

Studio Specs

Owner: Michael Dumas, Dusty Wakeman; **Manager:** Astrid Young, Mark Harvey; **Engineers:** Michael Dumas, Dusty Wakeman, Elijah Bradford, independents; **Dimensions:** Control room A 18x16x12; Tracking Room A 1,000 sq. ft. w/(2) 150 sq. ft. isos, 324 sq. ft. iso/lounge; Control Room B: 19x14x12 w/7x12x12 iso; soundstage 40x60; **Mixing consoles:** Studio A: Neve 8108/48; Studio B: Trident 80B/32; **Tape Machines:** Studio A: Studer A800 Mk IV, Ampex ATR-102. Studio B: Ampex MM1200, Ampex ATR-102; Floating: Sony JH-24 2-inch 16-track, Sony BVU800 3/4 inch, Alesis ADAT w/BRC, Tascam DA-88, RC8-48; **Signal Processing:** Lexicon, UREI, dbx, Summit, Manley, Yamaha, EMT, Roland, Eventide, Drawmer, Fairchild, Demeter, BBE, Lang, Hardy; **Monitors:** Tannoy System 215 DMT II, Tannoy NFM-8, Yamaha NS-10M; **Of Special Interest:** Vintage instruments. Also, Dolby SR, Pro Tools 4.0. Wide selection of tube mics. 3,000-square-foot soundstage with in-house P.A. and lighting grid, make-up and wardrobe rooms, and offices for pre-production, video and film production, rehearsal or still photography. Private, off-street parking, freeway adjacent, less than 10 minutes from Burbank Airport.

MAD DOG STUDIOS INC.

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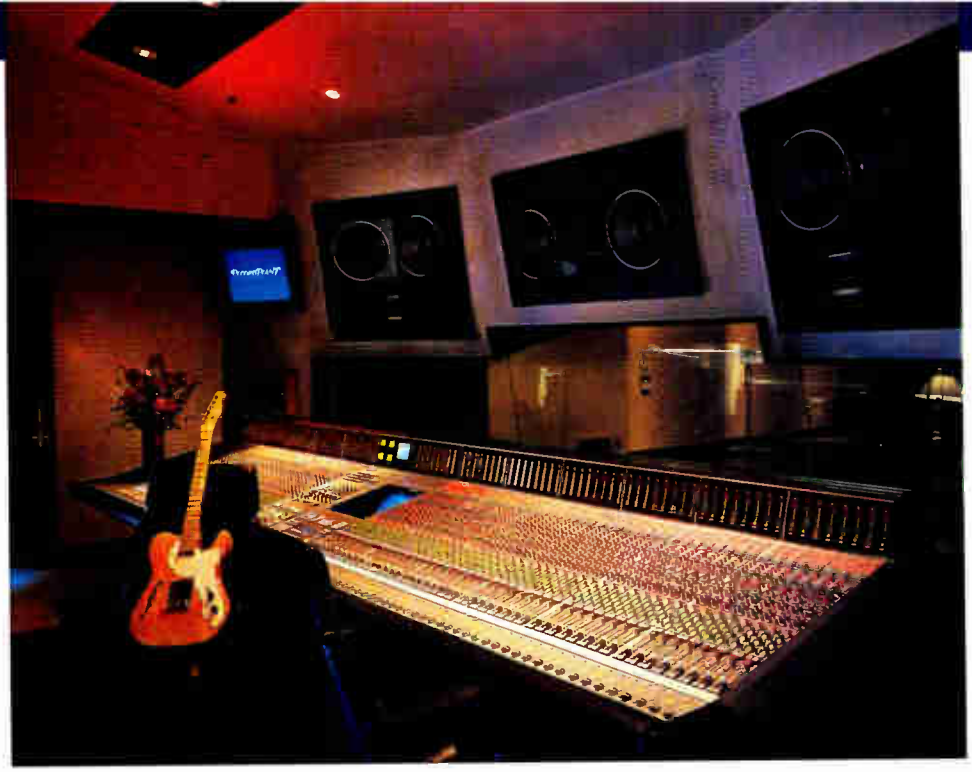

ED FREEMAN

Record Plant Recording Studios

Since opening its doors in 1970, Record Plant has always been in the forefront of the music recording industry. An undisputed leader in the field, its position has been maintained by adhering to the tradition established at the very beginning: a commitment to offer the highest-quality equipment with the utmost in customer service.

"Every business has a basic philosophy," says Rick Stevens, Record Plant owner since 1991. "Ours is to be the best, to target the top stars and the top movie projects. To do that, you need to provide the latest technology and the ability to maintain that technology properly. In addition, Record Plant has added a unique element: We provide our clients with service at the standard that a fine hotel would offer. We have client service directors to act as concierges, and all our studios are suites, where clients, if they choose, can stay within their own environment without interfacing with the outside world. But if clients want to go out and socialize and become part of the bigger Record Plant experience, that's there for them also—the atrium, the coffee bar, the Jacuzzi. That's what makes us special: We cater to the high-end client, providing the equipment, the facility and the services that they demand."

This philosophy has consistently kept Record Plant at the top of the charts; for the 39th annual Grammy Awards, 27 of the nominations and 12 of the awards went to recordings worked on at Record Plant, among them projects for Eric Clapton, Babyface, David Foster, Celine Dion, Humberto Gatica and Toni Braxton.

Redesigned with the help of studio bauhaus when Stevens became owner, the facility was enlarged to encompass five studios and a central two-story atrium. While numerous artists track and overdub at Record Plant, its specialty is mixing, a fact reflected in the console profile. The main rooms feature four SSLs, including an 80-input 9000 J Series, with E and G Series EQ on each channel. Complementing the consoles is a large supply of tube mics and vintage gear. The fifth studio, dubbed Audio Cafe, is available for vocals, overdubs and programming.

In 1996, longtime studio manager Rose Mann Cherney was made president of Record Plant, reflecting her role in maintaining the studio's traditions. "We compete on service, not on rate," she explains. "The Record Plant experience is one of creativity, cutting-edge technology, service and fun. That's why those who can go anywhere come here."

"Even if they have their own studio, artists and producers are going to come to a mothership studio to try new technology, or to have a recording environment that isn't available in their own place," concludes Stevens. "Although the capability of home recording has dramatically increased, we'll always be a step beyond it. We want to be the place you come to finish your record or where, if you're a star, you come to do the special project. That's been our goal, and we've achieved it. We have a very eclectic mix of music going on at Record Plant—Nine Inch Nails may be working in one room while Barbra Streisand is mixing in another. The only common denominator in people who work at Record Plant is that they are people who are the best in their fields."

Studio Specs

Owner: Rick Stevens **President:** Rose Mann Cherney; **Director of Bookings/Operations:** Amy Burr. **Dimensions:** SSL I Studio 18x22x12 w/iso, SSL II Studio 14x22x12, SSL III Studio 21x34x22 w/iso, SSL IV Studio: 40x35x25 w/iso and "superlive" room 21x21x14. **Mixing Consoles:** SSL I: 96-in SSL 8000 G w/E & G Series EQ and Ultimation; SSL II: 72-in SSL 4000 G w/E & G Series EQ; SSL III: 72 in SSL 4080 G Plus w/E & G Series EQ, Total Recall and Ultimation; SSL IV: 80-in SSL 9000 J w/E & G Series EQ, Total Recall and Ultimation. **Tape Machines:** Studer A800 Mark II, (two in each main room), Ampex ATR102, 104; Studer A820 1/2-inch, Panasonic 3700 DAT. **Signal Processing:** Call for complete list; **Monitors:** SSL I & III: custom Augspurger/TAD components—center speaker and JBL 8330s mounted in surround soffitt for LCRS, SSL II & IV: custom Hidley/Kawashita w/TAD components—center speaker and JBL 4312s mounted in surround soffitt for LCRS. **Of Special Interest:** One of the industry's largest microphone collections, including rare and vintage; private lounges with all studios, central atrium with Jacuzzi, billiards, coffee bar; concierge service; house video sync, color video monitors, ISDN lines in all studios

RECORD PLANT RECORDING STUDIOS

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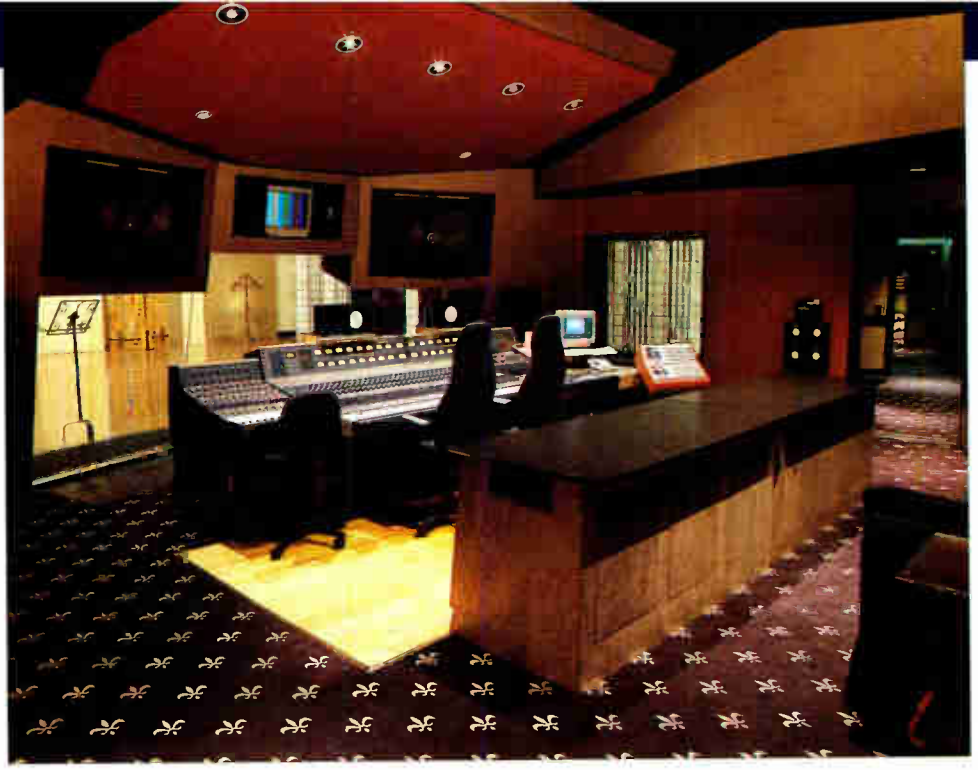
Web site: www.recordplant.com



EDWARD COLLER

Royaltone Studios

The phrase "attention to detail" takes on a new level of meaning at Royaltone Studios in North Hollywood. The two-room facility's interior decor is fashioned after a European castle and includes period antique furniture and furnishings that give the 11,000-square-foot facility an immediate feel of warmth and exclusivity and remind the client that the studios themselves are treated just as attentively.

Opened in January 1996, Royaltone has quickly taken its place as one of Los Angeles' world-class studios, yet it remains, as studio manager Jane Scobie puts it, "L.A.'s best-kept secret." The amenities that go with Royaltone's Grand Hotel motif are extensive, including a private whirlpool spa and several beautifully decorated private client lounges fitted with one-of-a-kind furnishings. "These rooms have a remarkable effect on people using the studio," says Scobie. "The facility is huge, so there's lots of room to wander around. Then I've seen people come back to one of the private lounges and finish lyrics or work out new musical arrangements. It's quite unique to have something so visually appealing and inspiring in conjunction with a recording studio."

The studios are equally remarkable. Royaltone's two rooms have undergone extensive technical refinements both electronically and acoustically. Studio A offers a magnificent day-lit tracking room coupled with a vintage and modified 40-input Neve 8078 with new GML automation and a Macintosh interface. The studio has a widely variable sonic capability, based on its inherent liveness and the array of acoustical materials Royaltone keeps on hand. Studio B, with its SSL G Plus console with Ultimation, Neve modules and its two spacious iso booths, is an intimate yet efficient overdub and mixing environment that offers a combination of vintage and leading-edge technologies. Both studios are expertly maintained by staff technicians. Together, the two studios and the overall facility design form a complex that's highly conducive to start-to-finish projects.

Some of the major artists who have availed themselves of Royaltone include Melissa Etheridge, Don Henley, Rod Stewart, Van Halen, Kula Shaker, Ry Cooder, The Bodeans, Des'ree and other artists from around the globe, as well as producers such as Tony Visconti, Stan Lynch, Hugh Padgham, Rick Nowles, Greg Goldman and Rob Jacobs.

"The studio is designed to maximize both creativity and efficiency," explains Scobie. "And we achieved that by creating a versatile environment that lets you go from work to relaxation at any pace you wish. And the service support around the client is completely transparent but always there. It's like working in your own home—if you happen to live in a very well-equipped castle, or if you ever wished to—and not having to worry about a thing. That's the heart and soul of the place."

Studio Specs

Studio Manager: Jane Scobie. **Dimensions:** Studio A control 23x24x14, studio 48x31x22, three iso booths, two amplifier closets; Studio B control 28x24x14, two iso booths; **Mixing Consoles:** Neve 8078 40/32 w/31105 modules, 72 channels of GML automation and Macintosh interface; SSL 4064 G Plus w/Ultimation; **Tape Machines/Media Storage:** Studer A800 MkIII (4) w/transport upgrades; Ampex ATR 102 (2); Studer A820; Panasonic and Sony DATs; **Signal Processing:** AMS RMX 16; API 550A, 550B and 560 EQs; Avalon M-2 dual-channel mic pre and E-2055 stereo EQ; dbx 160, 165; E.A.R. MP2 stereo mic pre; Lexicon PCM 70, 80, 42; Massenburg 8200 stereo EQ; Neve 2254, 3226 limiters; Pultec EQP-1A3, EQH-2 tube EQs and HLF-3C filter; TC Electronic M5000; UREI 1176 LN, LA3A and LA4 limiters; Teletronix LA2A; Tube Tech CL-2B stereo limiter; **Monitors:** Custom mains in both studios; Auratone Sound Cubes; KRK 9000B; Tannoy SRM 10B; TOC Time Align; Yamaha NS-10; Bryston, FM Acoustics, Perreaux and Yamaha amplification; **Of Special Interest:** Extensive microphone collection featuring vintage and new Neumann, B&K, AKG, EV, Schoeps, Sennheiser, Shure, Sony and Telefunken; Studio Technologies mic positioners; 9-foot Steinway grand piano; Hammond C-3 w/Leslie 122

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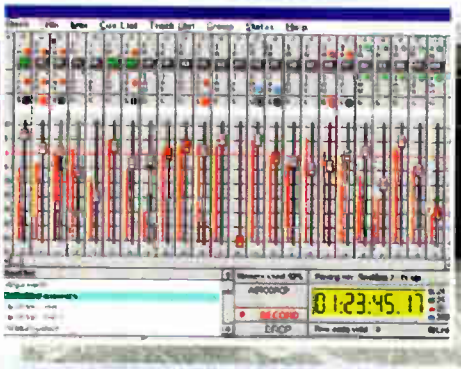

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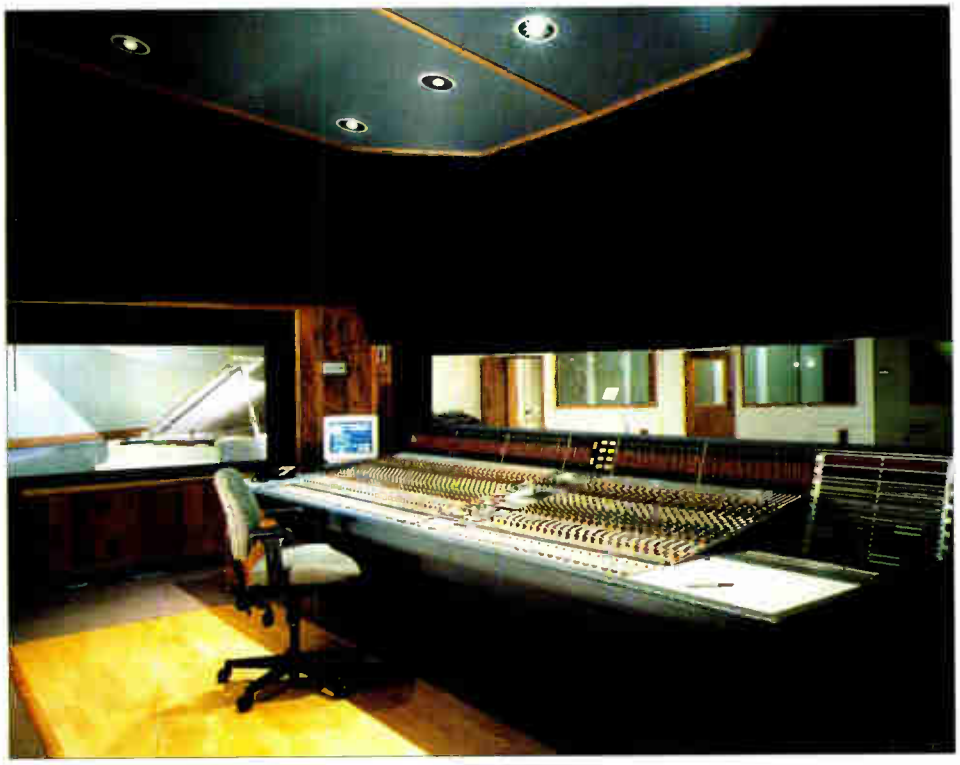

Rumbo Recorders

Nearing its 20th anniversary, Rumbo Recorders has long been regarded as one of L.A.'s premier recording facilities. Great-sounding studios and a comfortable atmosphere have kept the three-room facility busy with some of the industry's top producers and recording artists. The roster of producers who have used Rumbo regularly include David Foster, Mike Clink, Ron Nevison, Jeff Lynne, Beau Hill, Kevin Shirley and Rob Cavallo—top names who have worked there with such artists as Stone Temple Pilots, Smashing Pumpkins, Mr. Big, Take 6, Sammy Hagar, Ringo Starr, Tom Petty and Guns N' Roses.

The studio was founded in 1978 by Daryl Dragon and Toni Tennille (a.k.a. The Captain & Tennille) with Studio A, which set the tone for future expansions with its warm, spacious studio and control room and private lounge, all designed with musicians in mind. This approach would be taken with all of Rumbo's subsequent additions: Studio B in 1979 and Studio C in 1992 (the first booking, Tom Petty, resulted in the hit "Into The Great Wide Open").

Studio Specs

Owners: Daryl Dragon and Toni Tennille. **Manager:** Vicky Camblin. **Engineers:** Shawn Berman, chief engineer, Greg Loskorn, chief technical engineer, Mark Augustino (asst.), Dave Dominguez (asst.), Ken Ybarra (asst.). **Dimensions:** Studio A control: 28x25, studio 58x38, five iso booths. Studio B control: 25x22, studio 38x33, three iso booths; Studio C control: 25x20, two iso booths, all studios w/private lounges. **Mixing Consoles:** Studio A: 60-input Neve V3 w/Flying Faders; Studio B: 40-input Trident 80C; Studio C: 32-input Trident Series 80. **Tape Machines:** Studer A827 (2), Otari MTR-90II (3); Studer A820 1/2-inch; Ampex ATR-104 (2); Ampex ATR-102, Panasonic 3700/3500 DAT; Tascam DA-30 (2). **Signal Processing:** AMS RMX 16, DMX 15-80S; Eventide H3000; GML mic pre's (4 channels), GML stereo EQs (6 channels), API 550 sweep EQs (6 channels), API 560A graphic EQs (6 channels); UREI 1176 (9), LA-2A (3). **Monitors:** Custom TAD in all three control rooms; Yamaha NS-10 and NS-20. **DI Special Interest:** Hammond B-3, two Leslie cabinets w/guitar preamp pedals; Sony 9850 3/4-inch video; all three studios equipped for video lock. Neumann U47, M49 Tube and U67 Tube; AKG C-24.

"We chose the Trident consoles because of their sound and their simple signal flow," explains chief engineer Shawn Berman. "They're great consoles for tracking and overdubbing. We chose the Neve not only for its awesome sound but also for its incredible flexibility and user-friendly automation." Aside from the equipment complement, Rumbo's combination of excellent room acoustics, comfortable atmosphere and friendly, responsive staff continue to be the studio's drawing power. The facility also features private lounges for each studio—all of which are extensively mic-lined; visibility between control rooms, studios and iso booths; 24-hour on-site maintenance; private patio with barbecue; an illuminated basketball court, a billiards room and, of course, ping-pong.

Atmosphere, service and sound continue to be the main reasons Rumbo is considered one of the top facilities in Southern California. "Everything works well together here," says Vicky Camblin, studio manager. "The equipment, the acoustics, the staff—all three have always been equally important. And always will be."

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Scream Studios

Privacy is a word that gets used a lot in the entertainment industry. Scream Studios found a way to make it a reality when it comes to a recording facility. "I remember when I first started producing records in the late 1970s and how much I valued the ability to close yourself off when you needed to and concentrate on what you were doing," recalls Scream's founder/owner Randy Alpert, who has written and produced records ranging from Herb Alpert's *Rise* to The Notorious B.I.G.'s *Hypnotize*. "Privacy wasn't always the easiest thing to get at the large studios in Los Angeles at the time," he adds. "So that's one of the things that Scream is based on—when you work here, you're the only client. The extremely high level of service we pride ourselves on here is centered around catering to what the client needs and wants to make their music the very best it can be."

Founded in 1988 in a building that was a well-known Hollywood jazz club in the 1940s and '50s, Scream was conceived as a world-class mix room with equally good overdubbing capabilities, all achieved via a unique design (particularly of the very live-sounding triangular tracking room) by Vincent Van Haaff. "On the first Saigon Kick record I did there, everyone was playing in the same room, including the singer," producer Michael Wagener, who has done numerous major records at Scream, including Extreme and Ozzy Ozbourne, told *Billboard* magazine. "[Ozzy] was singing on an SM-58, and everyone else played on 'em,' and we still had major separation."

Others who have sampled Scream's intimate hospitality include Hootie & the Blowfish, Tracy Chapman, Nirvana, Soul Asylum, Rage Against the Machine, Alice in Chains, Janet Jackson, Sublime, Motley Crue and Faith No More. The studio's roster of producer, engineer and mixer clients is equally impressive: Don Gehman, Andy Wallace, Butch Vig, Dave Jerdan, David Kahne, Matt Wallace, Toby Wright, Brian Malouf and Peter Collins.

Over the last five years, they have come not only for Scream's cozy exclusivity but for its technical prowess, as well. The recording room offers a unique combination of sonics and personality, a world-class assistant engineer in Doug Trantow, a meticulously maintained 64-input SSL 4000 G Series with Total Recall and eight stereo faders, and the custom Tannoy monitoring system, recently retuned by acoustician/designer Chris Pelonis.

When the need for privacy gives way to the need for a little business or socializing, Scream's location is quite accommodating. "We're within a short drive of most of the major record labels and film companies in Los Angeles," says Alpert. "And within a few blocks there are 38 great restaurants and coffee houses. And if you wish, you can stay in, have a barbecue on the patio, play Nintendo games on the video system, watch cable TV or play pool on the purple pool table. That's the bottom line here: whatever you want."

Studio Specs

Owner: Randy Alpert; **Manager:** Jeanne Moultrie; **Engineers:** Douglas Trantow, chief engineer; **Dimensions:** Studio: 22x28 (triangular); control room 25x20; **Mixing Consoles:** 64-input SSL 4000 G Series w/Total Recall and all software and hardware upgrades; **Tape Machines/Storage Media:** Mitsubishi X-850 digital 32-track w/Apogee filters; Studer A827 24-track, Studer A820 2-track, Mitsubishi X-80 digital 2-track; 24-bit PAQRAT system; 24-bit Pacific Microsonics HDCD system; **Signal Processing:** Extremely large assortment of tube and digital outboard equipment; **Monitors:** Customized Tannoy Dual DMT-15, with Chris Pelonis custom crossover, biamped with Crown Macro Reference amp (on bottom) and Yamaha PI-4004M amp (on top); Tannoy System 8; Yamaha NS-10; **Of Special Interest:** Pool table, cappuccino, love and caring.

SCREAM!

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JACKIE SALLOW

Sony Music Studios

"First you eat, then we'll make music." That's the philosophy that makes Sony Studios, Santa Monica, the kind of place it is. "I'd describe both the sound of the room and the kind of reception you get here with the same word—warm," says director of studio operations Phil Kaye. "It's service-oriented. When you ask for a specific setup, that's exactly what's waiting for you when you arrive. But it's more that that; it's also a very friendly atmosphere that makes it a pleasure to spend time here. We treat you like family."

Built in 1991 from a Vincent Van Haaff design, Sony Studios has garnered a loyal client base well beyond the Sony Records roster, including projects for Art Garfunkel, Branford Marsalis, Shawn Colvin, Tony Bennett, Earth, Wind & Fire, Yellowjackets, Dione Farris, Kirk Whalum, Tower of Power, Neil Diamond, Kenny Loggins, Fiona Apple, Sophie B. Hawkins, Suzanne Vega, Nancy Wilson, For Real, Soul Asylum and 3T, as well as specialized production and post-production projects such as the prerecords for the forthcoming Broadway musical *Sisterella* and the recent "Radio Free L.A." live triple-bandcast to the Internet and 50 FM stations across the country.

The large control room offers a welcome combination of spaciousness and accurate sonics, as well as a TAD/Augspurger/Sony-designed two-way main monitoring system. The hardwood-floor recording room takes acoustical variety to a new plane via removable linear Fiberglas panels that can instantly provide a broad range of tonalities. Mixing on the customized Sony 3056 console with GML moving fader automation is buttressed by a unique video recall system that utilizes a Hi-8 camera mounted above the console to track the settings on the entire board, six channels at a time, allowing accurate resetting of all functions using the video freeze-frame.

Sony Studios is a technologically integrated facility; the recording studio is supported by a recently renovated world-class digital mastering facility, featuring engineer David Mitson and based around a Sonic Solutions system. Monitoring is via Huxley subwoofers, Altec 604 woofers, an Altec multicellular midrange speaker and Sony tweeters, driven by Pacific FET amps and vintage McIntosh tube amplifiers. In addition, Sony Studios offers high-end audio cassette duplication and multiple-format video duplication. The latter includes the ability to pull broadcasts down via the facility's 12-foot satellite dish, then send that tape to an Avid video editing suite.

The details offered by Sony Studios are as varied as the facility itself, including a 100-plus item microphone cabinet that features classic Neumann, AKG, Sony and Telefunken mics (including a pre-WWII Telefunken U-47 in pristine condition). And then there's the no-charge underground valet parking and a cafe attached to the studio. "We're not kidding when we say, 'First you eat,'" laughs Kaye.

Studio Specs

Owner: Sony Music Entertainment. **Manager:** Lee Ann Paynter. **Engineers:** Troy Gonzales, Claude Achille, Clint Crump, Marc Schrobilgen, Tam Figures. **Dimensions:** Control 17x22, studio 19x31, three iso booths and attached 29x35 audio/video presentation room. **Mixing Consoles:** Customized Sony 3056 w/GML moving fader automation, API 550S EQ and a combination of API and Sony mic pres. **Tape Machines:** Sony PCM-3348, Studer A827-24, Sony APR 24, Studer A820 (2), Sony DAT (2). **Signal Processing:** AMS RMX2, DMX, Eventide H3000, Lexicon 480L, PCM 80, TC Electronic 2290; Sony D7, M7, R7, SSL stereo compressor, EMT 140; Teletronix LA2A, Tube Tech CL1B; UREI 1176LN (4), Invonics 201 (2), Drawmer 1960, dbx 165A (4), 160 (4), GML preamp, EQ, compressor. **Monitors:** TAD/Augspurger/Sony custom two-way system, powered w/Pacific amps. **Of Special Interest:** Yamaha D-7 Disklavier, separate, portable MIDI facility loaded into wheeled Jan-Al cases, Mackie 32-input console, Mogami oxygen-free cabling; rentable by day, week or month. Will deliver.

Sony Music Studios

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MARTIN ATKINS

Sound City

Some studios seem to have an undefinable magic, and Sound City is one of them. Maybe it's the ambience of Studio A's recording room or its custom Neve 8028 console. It could be the history of the facility; after all, it was at Sound City that Mick Fleetwood met Lindsey Buckingham and Stevie Nicks.

In business for 28 years, the facility has always kept a low profile. Numerous platinum albums have been recorded there, generating loyalty from the artists, producers and engineers who worked on them. Starting from those early days with Fleetwood Mac, the facility has played host to Cheap Trick, the Grateful Dead, Elton John, Pat Benatar and, more recently, the Red Hot Chili Peppers, Rage Against the Machine and Tool. In 1991, Nirvana recorded their breakthrough album *Nevermind* at Sound City. None of these hits have led to rock-star attitude, though; there's a friendly, unassuming vibe about the place. As studio manager Shivaun O'Brien puts it, "We're not fancy, but bands feel at home here, and they get great sounds. Our credit list is really amazing. At Sound City, we feel that the product speaks for itself."

The two-room facility features vintage Neve consoles in both rooms. The 8028 in Studio A was custom-built for Sound City by Rupert Neve and was installed in 1975, making it the first Neve in Los Angeles. Studio B's board is an 8038, installed in 1995. With Class A technology and great-sounding recording rooms, it's no surprise that the facility has become a mecca for live tracking. Studio A's large recording space has remained unchanged since the studio opened—diehard clients won't allow a remodeling.

The facility doesn't rest on its laurels, though. "A lot of the engineers and producers working here are very picky, and we work hard to keep them happy," says O'Brien. "Maintenance of our vintage consoles is always top priority. Beyond that, we do everything we can to make the experience of working here creative and fun."

From Petty, who has recorded at Sound City for over 20 years, to Johnny Cash, who was in recently for his latest Rick Rubin-produced project, many artists can attest to the success of that goal. "At Sound City we've got a comfortable vibe and a great history," concludes O'Brien. "And the cycle just keeps on going. We have established artists and we have developing bands working side by side. There's no jaded attitude at all here—instead, there's an excitement and a sense of fun, because the people who work here are making really creative music, and there's always the possibility that whoever's in tomorrow may be the next new hit artist."

In an increasingly corporate world, it's nice to know that magic still has a part in making hit music; Sound City is living proof of that fact.

Studio Specs

Owner: Tom Skeeter, **Manager:** Shivaun O'Brien; **Engineers:** Greg Fidelman, Billy Bowers; **Dimensions:** Studio A: 40x50x25; Studio B: 20x30x18; **Mixing Consoles:** Studio A: Neve custom 8028 28x16x24; Studio B: Neve 8038 34x16x24; **Tape Machines:** Studer A800 24-track (2); Studer 867 1/2-inch (2); Studer A80 1/2-inch and 1/4-inch (4); Studer 867 1/4-inch (3); Panasonic 3700 DATs; **Signal Processing:** Lang and Pultec EQs; Tube-Tech; dbx 160X, 165; UREI 1176, Teletronix LA2A, GML mic pre's, Neve 33609 (4), 32264 (2), 1073 (2), 2254 (5); Dolby 301 w/mod for vocal; EMT 140 tube reverb; AMS RMX 16; Eventide H3500; **Monitors:** Studio A, B: Augspurger with JBL components, tuned by Steve Brandon; **Of Special Interest:** Steinway C grand piano; Hammond B-3 organ with Leslie; large selection of microphones, including Neumann U47s and M49

25TH ANNIVERSARY

Sound City

RECORDING STUDIOS

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Van Nuys, CA 91406
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ELIZABETH ANNAS PHOTO SENSATIONS

Sunset Sound

High quality in a custom setting has always been the hallmark of Sunset Sound. In business for 35 years, the three-room facility has stayed the course it set originally: serving the needs of musical artists using customized consoles, tube equipment and the best microphones. That philosophy has proven itself over the decades and also appeals to a large group of very contemporary artists—a client roster for the past year included such luminaries as k.d. lang, Sheryl Crow, Tony Toni Tone, Alanis Morrissette, Beck and The Wallflowers.

"We're not a me-too type studio," says Sunset Sound manager Craig Hubler. "While other studios have repeatedly chased the changing phases and styles of equipment, we've kept our niche. We're the most seasoned studio in town with this philosophy. It dates back to our beginnings: Composer/arranger Tutti Camarata, the company founder, recorded for many years in England. He loved the studios there and the customized boards, and he imported that philosophy when he started Sunset. For a long time, we built our own discrete consoles, using proprietary architecture along with API components. There are no ICs processing the audio in any of our boards."

In 1982 the two-room sister facility Sunset Sound Factory opened as an economical complement. "We were seeing a trend," explains manager Phil MacConnell. "Labels were looking to reduce costs on certain aspects of recording, so we opened Sound Factory to offer Sunset's clients flexibility in their recording budgets. That was the concept, but what eventually happened was that Sound Factory developed its own unique identity and client base." This past year it has hosted Counting Crows, Suzanne Vega, Prong, Screaming Trees and others.

Staff is key at both facilities. "We've always been very fortunate to not only recruit, but to retain good people," comments owner Paul Camarata. "In particular, our second engineers and maintenance people are a big draw. The assistants tend to stay with us for several years, so they are extremely competent and knowledgeable. We've always had a top-quality maintenance department; because our equipment is vintage or customized, we're very aware of the necessity to constantly maintain it. Consequently, downtime here is almost nonexistent."

Although primarily dedicated to album production, Sunset Sound has been able to achieve a comfortable blend of clientele that comprises advertising, film, and television soundtracks, as well, averaging around 70 percent record business, 20 percent ad agency work and 10 percent film and television. And in keeping with its commitment to quality signal processing, the facility is also now the exclusive North American distributor for the Alan Smart line of equipment, including the popular "SSL clone" stereo compressor, the C-2.

"We're veterans," concludes Hubler. "We've seen the ups and downs in the recording business, and we've always maintained that people want a good place to come and record, regardless of the progression of technology—people are always going to need large areas for live music. Meanwhile, we're mindful of technological advances. We're adding ISDN lines to connect our facilities, and we are exploring the audio vistas opening up with processes like DVD. We intend to continue servicing the music industry the very best we can, as well as the ancillary markets of jingles, film and television."

Studio Specs

Owner: Paul Camarata. **Managers:** Craig Hubler, SSR; Phil MacConnell, SSF; Lisa Matthews, SSR traffic mgr. **Engineers:** Doug Boehm, Cappy Jaongic, S. Husky Hoskulds, Howard Willing, Joe Zook, Tim Boland, techs Mick Higgins, Wren Rider, Lawrence Malchose; **Facilities:** Five comprehensive studios, call for complete information and brochure. **Mixing Consoles:** Custom Sunset, API, DeMedio Neve (GML and Flying Faders automation systems). **Tape Machines:** Studer, Ampex, Panasonic DATs, Sony VTRs. **Monitors:** Custom Augspurger (SSR), Big Reel & Custom PAS/TAD (SSF). **Of Special Interest:** 200 plus microphones, including numerous vintage tube-types; three live echo chambers (SSR), EMT 140 plates w/Martech mods (SSR & SSF, 4 each); Steinway B-7 pianos in all rooms; large collection of tube outboard gear, lounges in all five rooms. Large, secured, illuminated parking lot; central courtyard with basketball, ping-pong, BBQ gas grills.

1962 – 1997

SUNSET SOUND

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Fax: 213/465-5579

Sunset Sound Factory
6357 Selma Ave.
Hollywood, CA 90028
Tel.: 213/467-2500
Fax: 213/467-3103

Westlake Audio

Westlake Audio holds the unique status of being as much an institution in professional audio as a recording studio. Founded in 1971, Westlake brought a new dimension in monitoring to the studio business just as rock 'n' roll was transitioning from outlaw to cultural mainstay. Westlake's speaker and studio designs rapidly became the benchmark of the studio industry, something they remain to this day. And to demonstrate the speakers, owner Glenn Phoenix built a studio that quickly became a highly in-demand facility.

By the mid-1970s, Westlake Audio was home to scores of major records, from Tom Scholz's first Boston record through the main events of Michael Jackson's career—including *Off The Wall*, *Thriller* and *Bad*—and seminal disco producer Giorgio Moroder with Donna Summer, to Grammy-winning productions such as last year's *Falling Into You* by Celine Dion and Quincy Jones' *Q's Jook Joint*, as well as records by Alanis Morissette, U2 and other platinum-selling artists. Jones has used Westlake regularly over the years, joining other producers and engineers who have found a professional home there, including Humberto Gatica, Francis Buckley and newcomer Danny Saber.

"This has been a home base for a lot of talent for the last 26 years," says studio manager Phillip De Robertis. "They come for the rooms and the monitoring, both of which are as consistent and top-notch as anything in the world. But they also come because Glenn's background in custom-designing and selling monitoring systems brought with it an awareness of service orientation that's not found in other facilities. That's been part of the tradition here ever since the studio opened."

Westlake Audio offers seven rooms in two locations: two studios (the classic A and the recently refurbished B) in the original Beverly Boulevard building and five studios in the more recently built Hollywood location (all designed by Phoenix). The design consistencies between the seven rooms allow scheduling flexibility for clients, as well as a choice of which part of L.A. to work in. "A lot of people like the quietness of the Beverly Boulevard area," says De Robertis. "Others like the hipness of Santa Monica. Either way, you're getting Westlake's traditional level of technological and service quality."

Westlake's size and diversity have other benefits, too, including the ability to round up some of the most unusual gear a client could wish for. "And sometimes we do it at a moment's notice, in the middle of the night," laughs De Robertis. "That's what the word 'service' really means."

Studio Specs

Owner: Glenn Phoenix; **Manager:** Phillip De Robertis; **Engineers:** Hanson Hsu, chief engineer, **Dimensions:** Seven studios—please call for dimension details, **Mixing Consoles:** 60-input Neve V3 w/Flying Faders (2); 72-input Neve VR w/Flying Faders and Recall; SSL 4072 G w/Total Recall and surround sound capabilities; SSL 4064 G w/Total Recall, 36-input Sony MPX 3000 w/8 channels of API EQ. **Tape Machines/Media Storage:** Studer A827 (4), Studer A800 MkIII; Sony PCM-3348 (3), Sony APR-24 (6), Studer, Ampex and Mitsubishi 2-tracks, Sony and Panasonic DATs, Sony PCM-800 digital 8-track; 16 channel Pro Tools III w/video and SMPTE slave drivers, 5GB hard drive, Sound Designer software and multiple DSP farms; **Signal Processing:** Large array of outboard processing, including Lexicon, Teletronix, Avalon, UREI, dbx, AMS, TC Electronic, Eventide, Quantec, Summit, Drawmer, EMT, GML, TubeTech, API, Neve, Focusrite, Pultec, Publison. **Monitors:** Westlake HR1 X (Studio 1, with switchable JBL 18-inch subs), Westlake SM-1, Westlake BBSM-12, Westlake BBSM 6 surround speakers; **Of Special Interest:** TimeLine/SSL Lynx synchronization, 3/4-inch video sync, 48 channels Dolby SR and Dolby A, Apogee 500 converters, Adgear Vocal Spacer Otari UFC digital format converter

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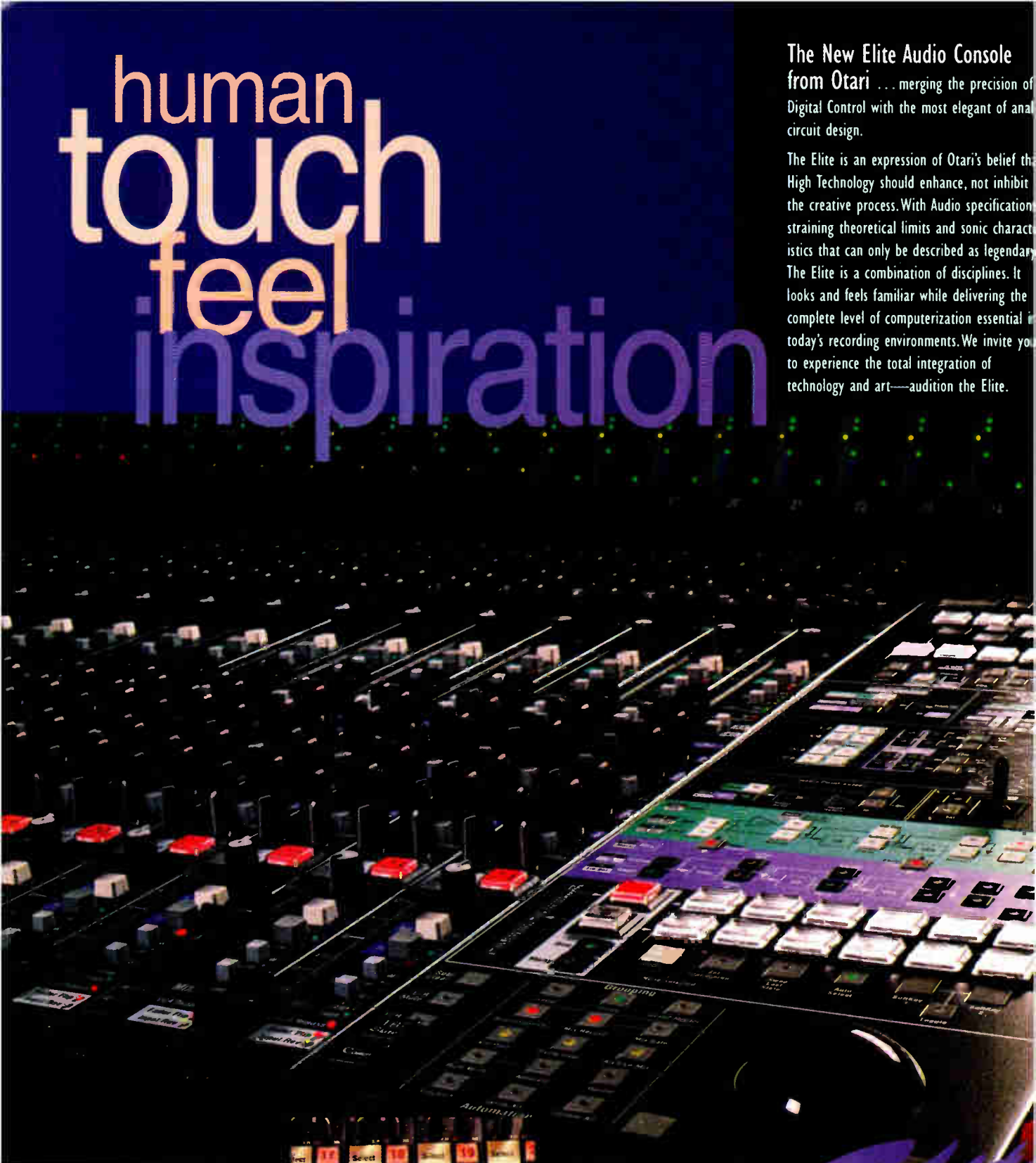

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TECHNICAL EXCELLENCE & CREATIVITY AWARDS

1997 TEC AWARDS NOMINEES

1997 TEC Awards Nominees

Listed below are the nominees chosen by the Nominating Panel of the 1997 Technical Excellence & Creativity Awards. A special TEC Awards nominees supplement and voting ballot will appear in the August issue of *Mix*. The TEC Awards will be held September 27, 1997, at the Marriott Marquis in New York City. For more information contact Karen Dunn at (510) 939-6149.

OUTSTANDING INSTITUTIONAL ACHIEVEMENT

Acoustics/Facility Design Company
- Harris, Grant Associates Ltd. London
- Pelonis Sound & Acoustics, Santa Barbara
- Russ Berger Design Group, Dallas
- studio bau:ton, Los Angeles
- Walters-Storyk Design Group, Highland, NY

Sound Reinforcement Company
- A-1 Audio, Hollywood
- Audio Analysts, Colorado Springs, CO
- Electrotec Productions, Westlake Village
- Maryland Sound Industries, Baltimore, MD
- Showco, Dallas

Mastering Facility
- Future Disc Systems, Hollywood
- Bernie Grundman Mastering, Hollywood, CA
- Masterdisk, Corp., NYC
- Masterfonics, Nashville
- Sterling Sound, NYC

Audio Post-Production Facility
- EFX Systems, Burbank
- Skywalker Sound, San Rafael, CA
- Sync Sound, NYC
- Todd-AO/Glen Glenn Sound, Hollywood
- Saul Zantz Film Center, Berkeley

Remote Recording Facility
- Design FX Remote, Los Angeles
- Effanel Music, NYC
- Le Mobile, Vista, CA
- David Hewitt's Remote Recording Services, Lahaska, PA
- Record Plant Remote, NYC

Recording Studio
- Chung King Studios, NYC
- Electric Lady, NYC
- Ocean Way, Los Angeles
- Right Track Recording, NYC
- Sony Music Studios, NYC

OUTSTANDING CREATIVE ACHIEVEMENT

Audio Post-Production Engineer
- Ben Burtt
- Tom Fleischman
- Ted Hall
- Walter Murch
- Dave West/Thierry Coutourier

Remote/Broadcast Recording Engineer
- Guy Charbonneau
- Biff Dawes
- Randy Ezratty
- John Harris
- David Hewitt

Sound Reinforcement Engineer
- Robert "Cubby" Colby
- John Kerns
- Dave Kob
- Dave Morgan
- Robert Scovill

Mastering Engineer
- Greg Calbi
- Bernie Grundman
- Ted Jensen
- Denny Purcell
- Howie Weinberg

Record Producer
- Kenny "Babyface" Edmonds
- Tony Brown
- T-Bone Burnett
- David Foster
- Don Gehman

Recording Engineer
- Tchad Blake
- Ed Cherney
- Mick Guzauski
- Tom Lord-Alge
- Rail Jon Rogut

OUTSTANDING TECHNICAL ACHIEVEMENT

Ancillary Equipment
- Aardvark AardSync II
- Apogee Electronics FC-8 Format Converter
- Benchmark AD2004 Analog-to-Digital 20-Bit Converter
- Equi=Tech Balanced Power AC Wall System
- Furman Sound IT-1220 Balanced Power Isolation Transformer
- JBL Smaart System

Amplifier Technology
- Crown K2
- Hot House High Res CR Amp
- Mackie FR Series M-1200
- Peavey CS800
- QSC Powerlight 2.0 HV
- Stewart World Series

Mic Preamplifier Technology
- ATI 8MX2
- Focusrite Green Dual Mic Preamp
- Grace Designs Model 201
- Joe Meek Tube Channel VC2
- Manley Mic/EQ 500
- Summit Audio MPC-100A

Computer Software & Peripherals
- Cakewalk Pro Audio 5.0
- Digital Audio Labs V8
- Liquid Audio Liquifier Pro
- Mark of the Unicorn Performer 5.5
- Sonic Foundry Sound Forge 4.0
- Spatializer Audio Labs Spatializer® PT3D TDM

Microphone Technology
- Bruel & Kjaer 4060 Miniature Microphone
- Earthworks TC40
- Neumann M149
- RODE Classic Tube
- Schoeps MZ22 Tube Mic System
- Soundelux U95

Sound Reinforcement Loudspeaker Technology
- Apogee Sound C-3
- Electro-Voice DeltaMax DMS 112285
- Eastern Acoustic Works KF855 Downfill Speaker
- JBL Professional HLA
- Meyer Sound Labs CQ-1/CQ-2
- Turbosound HiLight

Studio Monitor Technology
- Audix Nile V
- Dynaudio C4A
- Event 20/20 bas
- Genelec 1029A/1091
- Quested VS2205
- Tannoy System 800

Musical Instrument Technology
- Akai MPC-2000 Drum Machine/Sequencer/Sampler
- Alesis QS8 Expandable Master Synthesizer
- E-mu E-IV x Turbo
- Ensoniq MR Workstation
- Line 6 AxSys 212 Guitar Amp
- Roland JV-2080 Synth Module

Signal Processing Technology
- Amek 9098 Compressor
- BSS Omnidrive Version 1.22
- dbx Blue Series 160S
- Lexicon MPX-1
- Night Technologies EQ^{3}-D AirBand EQ
- TC Electronics Finalizer

Recording Devices/Storage Technology
- Genex GX8000
- Marantz CDR620 CD recorder
- Nagra-D series 2000
- Sony PCM-7040
- Studer D827-MCH Mk II
- Tascam DA38

Workstation Technology
- CreamWare Triple DAT Version 2.3
- Fairlight MFX3-Plus
- Roland VS-880 V Xpanded
- SADiE Version 3
- Sonic Solutions SonicStudio Post
- 360 Systems Shortcut

Sound Reinforcement Console Technology
- Allen & Heath GL4000
- Cadac F Type Live
- Crest Century LMx
- Mackie 40·8
- Soundcraft K2
- Spirit Live 8

Small Format Console Technology
- Korg Soundlink DRS 168RC
- Millennia Media Mixing Suite
- Oram Series 4R
- Soundcraft Ghost
- Spirit Folio SX
- Tascam M1600

Large Format Console Technology
- Amek Rembrandt
- AMS Neve Libra
- Otari Elite
- RSP Technologies Project X
- Soundtracs Virtua
- Solid State Logic SL9000 V. 2

Hall of Fame
Al Schmitt

Les Paul Award
Stevie Wonder

1997

BY TOM KENNY

POST·SCRIPT

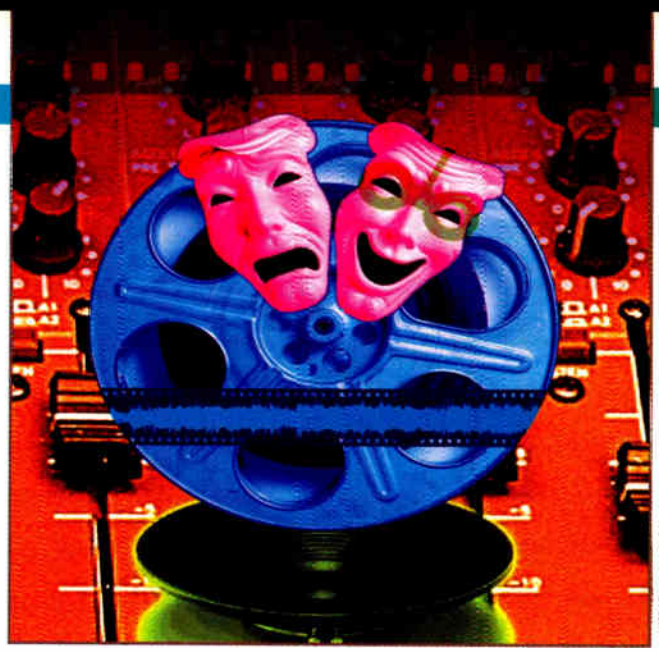

ILLUSTRATION: TIM GLEASON

SOUND FOR FILM

I AM NOT AN ANIMAL!

by Larry Blake

In an article on film music trends published this winter in *Daily Variety*, a well-known rock producer/artist was speaking about his displeasure with how a recent film score of his was mixed. It wasn't clear whether he was referring to technical or creative issues, although I gather it was a combination of both. Since I saw the film in question in a not-so-hot theater, I can't comment on how it *sounded*. As for the creative part, I think his score was well-represented and matched the dramatic needs of each scene. I have a strong hunch that this director was closely involved during the mix with issues such as level (and placement) of music, removing from the mixers a certain amount of credit and blame.

So, what am I talking about? There's nothing new with composers wanting their music to be played louder, if that was indeed the essence of his beef. I'm referring to this article because he then went on to make some insultingly nasty generalizations about film mixers, implying that we punch time clocks with nary a worry of rattling a creative bone in the process. It's as if his sole knowledge of re-recording

—CONTINUED ON PAGE 134

AND THE OSCAR GOES TO . . .

More than a billion people watched supervising sound editor Bruce Stambler (*The Ghost and the Darkness*) and re-recording mixers Walter Murch, Mark Berger and David Parker and production mixer Chris Newman (*The English Patient*) accept the statues for Best Sound Effects Editing and Best Sound, respectively, at the 67th Annual Academy Awards. But as these five men would be the first to attest, they wouldn't even be in the Shrine Auditorium without the stellar work of their crews. (As an interesting aside, and one that doesn't seem to have been picked up by the trades, Murch is believed to be the first-ever "cross-crafts" winner, in that he won for film editing and Best Sound. Writer-directors have won two, as have editors/mixers within the two sound categories, but to our knowledge, no one has ever scored a comparable double.) Here, then, are the crews. Congratulations to all!

THE ENGLISH PATIENT

Sound editing and re-recording at Saul Zaentz Film Center, Berkeley, Calif.

PHOTO: PHIL BRAY

Supervising Sound Editor (and Associate Film Editor): Pat Jackson
First Assistant Sound Editor: Marilyn S. Zalkan
Sound Effects Editors: Kyrsten Mate Comoglio, Douglas S. Murray, Jennifer L. Ware
Assistant Sound Effects Editors: Stephen Kearney, Aura Belle Gilge
Dialog Editors: Sara Bolder, John Nutt, Dianna Stirpe
Assistant Dialog Editors: David Franklin Bergad, Tobin Delaca Davis, Mary Works
ADR Supervisor: Mark Levinson
ADR Editor: Richard Quinn
Apprentice Sound Editor: Michael Axinn
Sound Department Interns: Adam Dornbusch, Diego Taborda
Sound Transfers (Rome): Liberata Zocchi
Foley Editor: Malcolm Fife
Foley Mixer: Richard Duarte

FACILITY SPOTLIGHT

POP AND DVD

5.1 FROM FRONT TO BACK

by Tom Kenny

Ted Hall (above) and Steve Thompson (left) of Pacific Ocean Post

Regardless of how and when (and if) it catches on with consumers, Digital Versatile Disc has certainly captured the imagination of the technical and creative community. For studios such as Warner Bros., which made an early and substantial push to release product, the format makes tremendous economic and artistic sense: You have a back catalog, and you have the opportunity to present material as it was meant to be heard. For independents, the benefits are not so readily apparent: Startup costs are high, the risk is great and the technology is new. But, there is always the allure of getting in on the ground floor.

As an independent facility with some of the clout and infrastructure of a studio, POP (formerly Pacific Ocean Post) of Santa Monica, Calif., would lie somewhere in between the two camps. In 1984, Alan Kozlowski established a high-end video effects and editing facility on the then-remote (as far as the entertainment industry was concerned) West Side, and that end of the business grew steadily to the point that this year POP Television had at least six of the Super Bowl spots and POP Film had contributed most of the major effects to *Independence Day*. Additionally, in February POP Animation was formed by combining

—CONTINUED ON PAGE 140

(Left to right): Re-recording mixers Mark Berger, C.A.S.; Walter Murch, C.A.S.; and David Parker shown here at the C.A.S. Awards. Production mixer Chris Newman, C.A.S., who also won was not at the awards ceremony.

Supervising sound editor Bruce Stambler

Assistant Foley Mixer: Steve Fontano
Foley Artists: Margie O'Malley, Marnie Moore, Jennifer Myers
Re-recording Mixers: Walter Murch, Mark Berger, David Parker
Music Editor: Robert Randles
Assistant Music Editor: Ling Ling Li
Original Music by the Academy of St. Martin in the Fields, recorded at Air Studios, London, and YAD Music, France
Music By: Gabriel Yared
Music Sound Designer: Georges Rodi
Recording Engineer: Keith Grant
Shepherd's Hotel Jazz Orchestra recorded at Angel Recording Studios, London
Sound Engineer: John Timperley

THE GHOST AND THE DARKNESS

Sound editorial by Soundstorm, Burbank
Re-recording at Warner Hollywood Studios by Donald O. Mitchell, Rick Hart, Frank A. Montano

—CONTINUED ON PAGE 217

LITTLE DIGITS

SMALL-FORMAT DIGITAL CONSOLES IN AUDIO POST

by Loren Alldrin

It seems like just yesterday when digital consoles were the massive, expensive domain of only the best-financed post houses. Today, there are several small-format digital consoles available in the $8,000 to $40,000 price range, all boasting impressive features and specs. In talented hands, these lower-cost consoles can turn out sound with quality and complexity that need no apology.

We spoke with audio post engineers using two of these mixers, the Yamaha 02R and the RSP Technologies Project X. The British-made Soundtracs Virtua ($39,500 for the base 48-input/32-output system) was scheduled to be a part of this article. Unfortunately, due to the newness of the console, Soundtracs wasn't able to supply us with names of people using Virtua for video or film post applications.

BRIGG'S BAKERY AND THE YAMAHA 02R

Yamaha's 02R digital mixing console pushed back the price/performance barrier when it was first released in 1995 by offering 40 fully automated inputs, onboard effects, 4-band, 32-bit EQ, full dynamics on each input and optional MDM digital interface cards. With a list price of just $8,699, the 02R has made waves in the music production and audio post worlds alike.

Located on the upper west side of Manhattan, Brigg's Bakery is a small facility specializing in audio post for long-form video. Owner and one-man show Lee Murphy picked up an Emmy for his sound design work on the popular PBS *Reading Rainbow* series with Levar Burton; more recently Murphy has been posting 15-second spots for the Discovery channel, as well as working on other video productions.

According to Murphy, Brigg's Bakery is a small facility with a control room, a studio that's "more than an announce booth, but not a big room," and a machine room. Before upgrading to the 02R, Murphy had an analog mixer with OptiFile automation. "Because the room is so compact," he says. "I didn't have an option of staying in the analog realm and adding digital. I had to determine that I would be one or the other. I went digital and am now one of the few places around that's totally digital. A lot of folks have digital equipment, but they're running analog in between. We're completely digital, with fiber optics running between the mixer and the machine room, where the Otari RADAR and Tascam DA-88s are.

"I've always had consoles that are very good in terms of their built-in capabilities, but I found the amount of control they offered somewhat limiting," he continues. "With the 02R, I've entered into a level of control that I've never experienced before. After I installed the OptiFile in my previous mixer, I said, 'Gee, how did I ever do all of this manually before?' With the OptiFile, all I was controlling was mutes and levels; with the 02R, I'm controlling all parameters."

Today, there are several small-format digital consoles available in the $8,000 to $40,000 price range, that boast impressive features and specs.

Though he had experience with automation before he switched to the 02R, Murphy had some apprehension about learning the new system. "In terms of the automation, I'm not a technoid," he says. "I had gotten pretty used to my OptiFile, and thought, 'I'm going to miss this. It's going to be terrible. I'm going to have to learn this whole new way of working with the 02R.' When I took delivery of the 02R console, I was suddenly thrown four half-hour shows due to a scheduling goof at the production company. I had to complete them in a very short period of time, and the console had just been powered up for the first time. Needless to say, I learned the 02R's automation system very quickly.

"As the owner/operator of a relatively small facility," Murphy concludes, "I had neither the space nor the gross billing to justify the purchase of a larger-format console like Neve, SSL or Euphonix. With the 02R, having this kind of power over the work I'm doing—at this price point—is just remarkable."

VOICE ARTS PRODUCTIONS AND THE RSP PROJECT X

Less than a year ago, RSP Technologies began shipping its mid-priced Project X all-digital mixer. Targeted at music production and audio post-production, the base Project X system offers 32 inputs, 16 outputs, dynamic automation, 4-band EQ, dynamics, two internal effects processors and Circle Surround encoding. Project X ranges from $30,000 for a basic mixer up to $55,000 for a fully loaded, 64-input system.

Pierre Michaud of Voice Arts Productions (Montreal) recently took delivery of a 32-input Project X system. Voice Arts does mixing, sound design and ADR for long-form video productions. The Project X system is interfaced with Sony PCM-800 recorders and a Digidesign Pro Tools system.

When deciding on a console for his new facility, ergonomics were high on Michaud's list. "I was looking for a board with direct access to all inputs," he says, "instead of a system where I have to use a 'flip' button. An analog console allows you to have access to all your EQs and input buses, which is visually a lot quicker. For me, a digital console is a cheaper way to get that same functionality.

"Everything is very nicely laid out on the Project X," Michaud continues. "I like the fact that you can access the EQ and automation for each channel directly. This makes working with the Project X very fast. Also, the faders are of much better quality than you find on a lower-end console. I appreciate the fact that everything is in a rack—it makes wiring and the studio much cleaner for me. There are just two cables running to each module."

Expandability also sits high on Michaud's list. "As my studio grows," he says, "I'm definitely looking for a console that I can grow with. Unlike some boards where what you buy is what you get, Project X is very easily expanded. I only have 32 inputs for now, but I plan to expand the console into a full 64-channel system. I wanted to go a little bit bigger than a Yamaha 02R or similar console could go.

"The Project X certainly has excellent automation," he concludes, "which is something I use extensively. To get the same functions in an analog console, I'd be looking at spending $150 to 160K. Project X sits in a very good price bracket for me—it's a higher-end console at a very inexpensive price. I'm quite pleased with RSP's responsiveness, as well. They seem committed to turning Project X into a real film board." ■

Loren Alldrin is a Nashville-based freelance audio and video producer.

Breathtaking post-production performance

(Oxygen not included)

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—FROM PAGE 130, SOUND FOR FILM

mixers came from Albert Brooks' *Modern Romance*, in which the mixers call the machine room for a loop of "Hulk footsteps" like they were giving orders at a McDonald's. I hope he doesn't think everyone who likes fava beans is a vicious serial killer, since that is what one learns from *Silence of the Lambs*.

But wait, there's more. The musician in question went on to say something to the effect that it's no secret that mixing films is real easy. Huh? I could ask him if he's ever had the pleasure to mix dozens of tracks comprising production dialog, ADR, narration, group walla, Foley, backgrounds, hard effects, source music, live music and, yes, underscore like his, dealing with a multitude of release formats and picture changes, and blending them into a seamless, two-hour continuous whole while never losing focus on the drama on the screen.

I could reduce what *he* does to spending a few months recording ten songs on a multitrack, and then spending weeks mixing down ten pieces of 24-track tape to ten pieces of 2-track tape. Makes it sound easy, huh? Of course, if the music is as good as some of the stuff that he has produced, it isn't easy. Nor is it when the film sounds as good as, say, *Apocalypse Now*. (Granted, most work in either field isn't up to those standards.)

Even for a writer who is fond of long-winded setups, this one is a bit drawn-out. I guess I'm trying to define the adversarial relationship that exists between some of you music folks and us film-types out there in the hope that I can tear it down once and forever. Sorta like re-setting a broken bone.

And yes, I know that many of you, like the whiner musician, labor under the misconception that film mixers are fat, dumb and happy mouth-breathers (personally, I try to be no more than two of the above at any one time) who spend what precious few brains cells we possess on figuring out if we're going to spend this week's overtime on a new RV or a new yacht.

Well, it's not so. We really want to serve your tracks well, and I hope that the opinions expressed below will be of help to you in preparing mixes—either of underscore or songs—for use in a movie.

• Spread Out! Well, you should do it with a little more elegance and forethought than the Three Stooges, but the key here is that you should never hand in a 2-track mix for use in film. Never! You might be saying, "This is what I'm used to doing, and I don't want you to be able to screw with my mix." While that's an understandable point of view, let me explain why it's in *your* best interest to spread out your mix to eight tracks.

First of all, if everything is tied together and there is a clarinet line that bugs the director, we mixers can only do so much with EQ without hurting the whole mix. In a best-case scenario, the cue might be played lower than we would like. In a worst-case (rare, I admit), it might get broomed totally.

We're not looking to screw with your internal balance; we just need the ability to make adjustments according to the needs of what else is going on in the scene, especially with regard to dialog conflicts. For most rock music, I would like to receive two left-center-right groups, the first with the overall rhythm section (with kick, snare and bass assigned to track 2), and the second group consisting of the rest of the band and solo instruments assigned to track 5. The remaining two tracks are wild cards, perhaps with an optional LR synth overdub, or separate center-assigned solo instrument and lead vocal, or whatever

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the needs of the song dictate.

While the mantra in the '80s was that if you were doing a score for films, you had to listen through the Dolby 4-2-4 matrix, today I am more worried about how everything will play in the discrete 5.1 digital formats. Where a 2-track mix will fill in perhaps too much into the center through the matrix, it still gives you an even spread across the front LCR speakers, with varying degrees of leakage into the surrounds.

But you get what you give in digital mixes, and if you have everything assigned as LR pairs, with nothing going to the center, the balance will only sound right if you are in the exact middle of the theater. Go one or two seats off axis and the whole mix will shift to that side. It feels weird, and it is most definitely *not* wider, as is commonly thought. It's for this reason that I request that center-channel information be assigned directly to one of the center tracks. This track layout is useful even if the film is only planned for a matrixed stereo optical release, because not only do we have more control at the final mix, but your stems can more easily be adapted in the future to a discrete format if and *when* that is required.

(Along these lines, as I said in a series of columns last year, multichannel music-only release courtesy of DVD is just around the corner, and one would do well to record split-out "stems" of all your mixdowns, even if you only vault them and continue to use a 2-track mix for your current needs.)

• ...but not too much. Eight tracks are much better than two, but 16 are usually worse than eight. I am referring to the whole picture here. Unless you have a multitude of disparate elements that may need to be fine-tuned against picture (say, with an onscreen rock group, orchestra, soloists or choir), you should be able to fit everything into eight tracks. Going over that threshold will often push the limits of what we can fit on the music side of the board; remember, your material will show up at the final mix alongside dialog, sound effects and Foley premixes.

The music editor's capabilities are another factor here, and if the mix will be from his or her workstation, understand that not many systems have more than 16 outputs. Standard film music is made up of score, original songs and pre-existing (usually 2-track) songs, and 16-track mixdowns leave no room for an adjacent cue.

• Go DTRS. I usually try to sound egalitarian and refer to modular digital multitracks generically, as in "either ADAT or DTRS" (DA-88, etc.), but the fact of the matter is that only the DTRS format has been accepted by the world of film and TV post-production. Yes, you *can* give it to us on ADAT, but you're adding one more needless transfer that will give Mr. Murphy yet another chance to sneak in the back door.

• Know thine timecode and sample rate. Someone in the film post-production team, which consists of the supervising sound editor, music editor and re-recording mixers, should give you a written set of specs as to how they would like tapes delivered. Everybody has a slightly different way of working, and you should insist that the music supervisor or whoever is your contact to the production put you in *direct* touch with these folks. Disregard and refuse to accept their telling you to "do it like you usually do it." They're telling you that out of laziness, out of lack of respect for the craft of music recording.

I think that *where* the timecode comes from depends on whether you are doing the whole underscore or just a song or two. In the case of the underscore, the timecode on both your multitrack master and the mixdown tape should match the code on the tapes to which everyone is editing and mixing. While this might seem pretty obvious, you should also have the tapes prestriped for the complete length of the reel, even if you only have one cue at the beginning or end.

If you are doing a song "wild," then I think that it's okay to have just two minutes of pre- and post-roll. In this instance, too, it's proper to have your mixdown tapes match the timecode of your multitrack master, so that everybody is locked together at the mix with no offset. It's helpful for the tape that we receive to bear the same code as your multitrack master, because if there is any question or problem, we're speaking the same location language.

Find out exactly at what sample rate the music editor's workstation is running when referenced to NTSC video. If it's 47.952 kHz, you should have the "pull dn" setting on the DTRS menu; for 48.00 kHz, it's "pull off." If you get it wrong, when the music is loaded in digitally, the cue's length will change. Granted, this will only become a problem if you are dealing with live, synchronous recordings or tightly synched underscore, but if you always do it right, then it becomes second nature and you don't have to worry about it.

• Use your standard monitors. One part of me is screaming, "Are you nuts, Larry? They'll be mixing on freaking NS-10s!" What I'm trying to say is don't start second-guessing what you're hearing. Don't think, "Well this mix will have to punch through little holes in the screen and therefore I should make this mix brighter to compensate." It ain't so, Joe. I don't believe that the perceived frequency response of a properly aligned re-recording stage is all that different from that found in your favorite mastering studio. To wit, if your mixes survive the trip to the mastering engineer without much twisting and turning of knobs, then I can guarantee you that the same will happen when it's placed in a film.

While half of me indeed says "for optimum results, align your monitors to the standard film curve," I know that the trouble and anxiety inherent in doing so would distract you from the creative task at hand. Stay with what you know.

The flip side of this is don't try to tell me, as one music engineer did, that you don't recommend that *I* do any EQ with your tracks because I'm monitoring through an antiquated set of far-field, behind-the-screen film monitors. This is a movie, for God's sake!

In case you get the idea to mix with home theater speakers, I would warn you that some companies design their center speakers to match some Martian EQ curve, which allegedly makes them more suitable for reproducing film dialog. And while I'll be the first to join in and say that most movie dialog indeed sounds pretty crappy, it still comes through the same speaker as the music and sound effects, and for a coherent sound field with those two food groups, it's essential that the center speaker be identical to the left-right pair. Accept no substitutes.

What if you don't have a center speaker? Well, this is clearly not optimum, but as long as you are *recording* the center-channel information on separate tracks, monitoring phantom shouldn't be a problem.

• Don't sweat surrounds or subwoofers. Yes, I know I'm talking about 2.1 of the 5.1 channels, but I think it's generally a waste of your time to put too much energy—sound or otherwise—into those speakers. It's tough enough for those of us who mix films every day to get them to translate, and you never know when the proverbial pimply assistant manager will be adjusting them to match his hormonal imbalance. Subwoofers, especially, differ radically even from dubbing stage to dubbing stage, much less to the Hell Sixplex.

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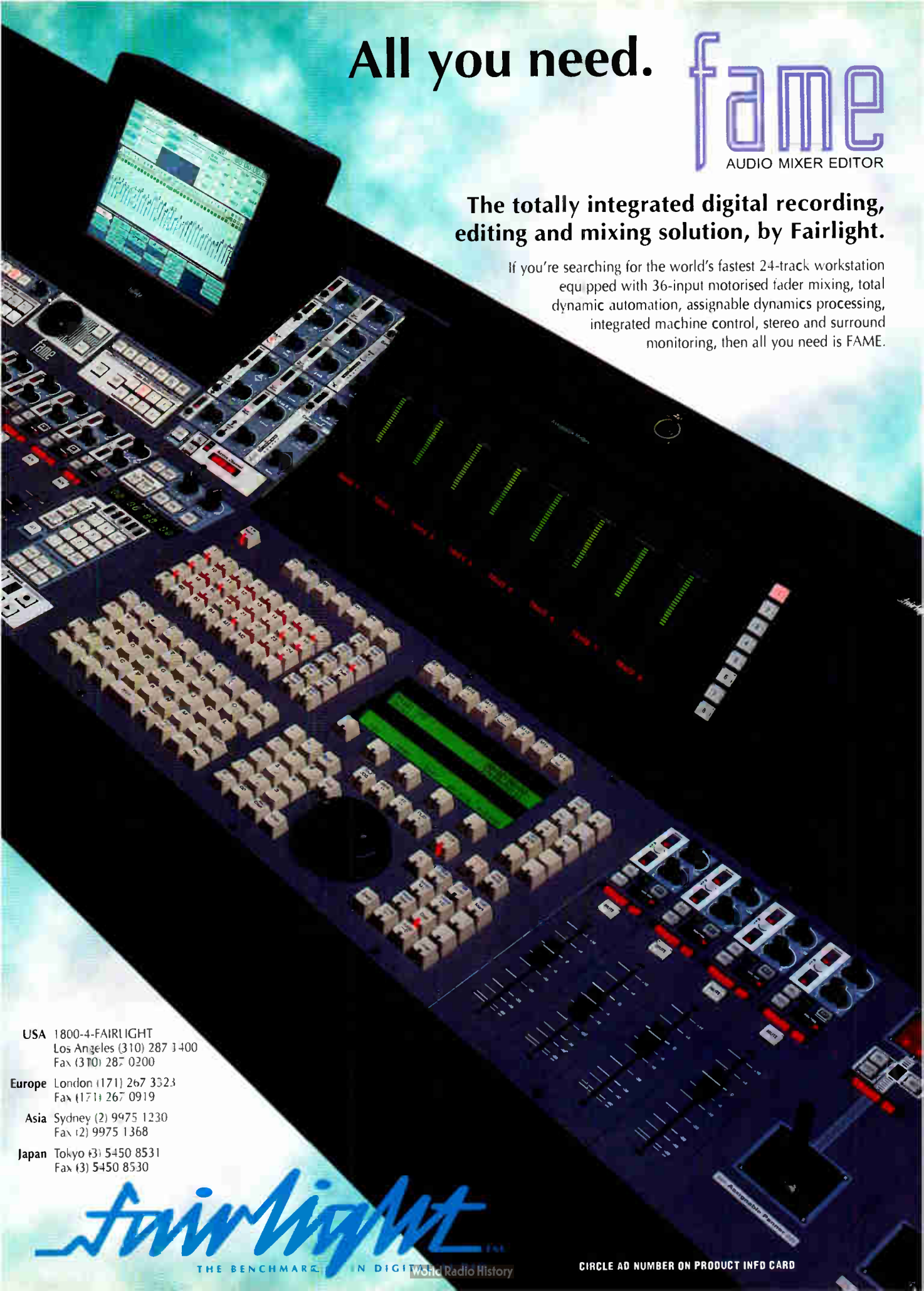

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Surrounds are relatively easy to create during the final mix, and besides, they should be tailored specifically for the matrixed and discrete versions.

There's another problem with mixing to a full 5.1-channel situation—too much of the impact might be dependent on everything being *right*. You need to mix your low end so that it is sufficient on its own, without the help below 100 Hz that subwoofers can provide. Screen speakers are generally considered usable to the 40Hz region, and that is a lot.

The other reasons for your not dealing with subs and surrounds are pretty prosaic: First, you free up more of your precious eight tracks for the splitting off of important elements. And second, as noted above, setting up those extra 2.1 channels will take time on your part that would be better put in other areas, I believe.

• Acknowledge Thy Production Track, But Not Too Much. It wouldn't occur to me to mention this were it not for the fact that a few years ago, a Rock Legend recorded a score while looking at and listening to the film. This sounds all well and good until you realize that the production track was playing not on headsets but on *speakers*, and bled a little bit into the music recordings. That, as my friends in Australia would say, is a shocker. Of course, I know that *you* would never make such a mistake.

The way you can correctly pay homage to the production track is if the music will be playing under dialog, you should monitor it as such during the mixdown. This way you can tailor your internal balance and, especially, the low end, to compensate.

• Delivery minutiae. Because it's so common for everything to be done at the 13th hour, be sure to play back each mix before shipping it out. In fact, I request that we receive two copies of each mix, *justincase*. Obviously if you can make two first-generation masters via automation, great, although it's perfectly acceptable to make a clone of the master mix or have the digital out of the main DTRS machine connected to the digital of a second. You might want to make a third set for your own archives, since our tapes will be vaulted away with the rest of the mix elements.

At the same time you should ship a DAT of the final mix along with whatever 2-track format the soundtrack album executive producer or mastering engineer requests, if indeed there is such a deal at that stage.

• • •

On the last film that I worked on, *love jones*, we had five songs written especially for the movie that were mixed at various locations across the country. I gave the music supervisor my specs early on, and she was good about making sure that everybody was on that page. Nevertheless, I was given "real world" admonitions by some people involved with the film that I was aiming a bit high and should be prepared to get handed the usual bunch of 2-track mixes.

Well, wouldn't you know it but, to a person, each engineer complied with the specs, save for one who was forced into using an ADAT because that was all that was available where he was mixing. On all of these songs, I did little or no EQ or adjustment of their internal balance, and the path from music mix to music editor to film mix was quite smooth.

Let me know of some of your film music experiences, smooth and bumpy, at P.O. Box 24609, New Orleans, LA 70184, fax 504/488-5139, or via the Internet: swelltone@aol.com. ■

Larry Blake is a sound editor/rerecording mixer who lives in New Orleans for reasons too numerous to mention, although one of them would have to be that people say stuff like "if the load smokes, don't touch it."

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—FROM PAGE 131, POP AND DVD

POP's CGI team with the crew from the recently acquired Buzz F/X.

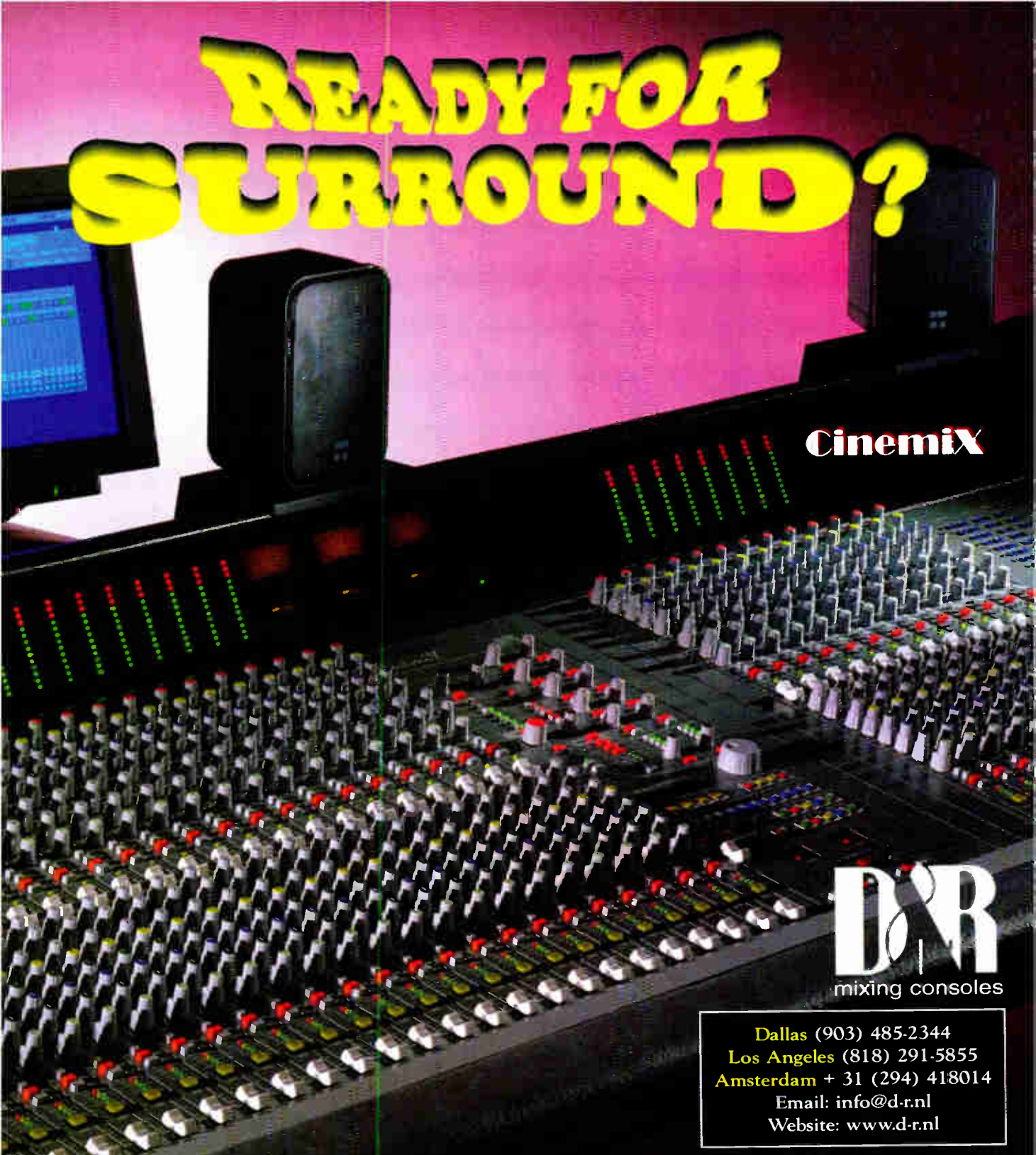
In 1992, spearheaded by Bruce Botnick, POP added audio services that were fiber-optically linked to its video division across the street. Today, POP Sound boasts nine all-digital rooms, three with AMS Neve Logic 2 boards, three with Logic 3s, two Logic 1s (all equipped with integral 24-channel AMS AudioFile workstations), a Sonic Solutions room for restoration/mastering and an ADR/Foley room with a Euphonix CSII. Six of the nine are equipped for discrete 5.1-channel monitoring and playback; two more will be added this summer. And apparently, AMS Neve is in the process of developing point-to-point network technology to connect all the rooms.

So the experience and technology was in place for POP to make its next big leap this past April, when it opened the Cinram-POP DVD Center in a neighboring building in a joint venture with Cinram, one of the world's leading replicators. The facility on Lincoln Avenue, designed by Brett Thoeny of BOTO Design, incorporates two authoring rooms and two quality-control rooms, with TMH Corp. MicroTheater System monitoring, a left-right-phantom center-surround configuration that "offers an accurate reference multichannel listening environment for one person," according to Steve Thompson, POP director of digital audio compression. "It's a narrow listening window, but when you're in a quality-control position with a reference environment in a small space, it's very controlled and accurate regarding room interaction." The facility also includes a high-end, living room-style listening environment, and associated offices and support facilities. The building is linked via fiber-optic cable to the television, film and sound divisions.

Steve Thompson, who, while at Dolby, guided the development of AC-3 compression for laserdisc release, was hired by POP in June 1996 to be director of digital audio compression and to develop and operate the DVD Center. He is also a respected mixer, with a number of Dolby Surround music and film projects to his credit. "The DVD Center basically serves to bridge the gap between the post-production services that POP offers and manufacturing that Cinram offers," he says. "There has been this missing link, where you have the compressed video elements, you have the compressed audio elements, and somebody has to take those and essentially write the script. So we've developed a separate facility that serves that one feature: networking to get elements transparently between all these buildings. It's a natural extension of the work we've been doing.

"One of the problems, of course, in building a facility at this stage in the game is that investment," Thompson continues. "We know we're getting into this at a level where there is a lot of R&D and work to be done, but we found that it's also important to get in and get going to support the industry so that it benefits all of us in the future. The problems in putting together this kind of program are big—the tools aren't necessarily mature, the learning curve is high and every little piece of the puzzle adds a new twist. So these kinds of joint ventures or strategic alliances are necessary to bring the minds together."

"In that it's a new technology, clients are just not clear in how to go about it," adds Bill Feil, managing director of POP



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Sound, commenting on the extreme nature of this version of one-stop post-production shopping. "I know that if I were out there needing DVDs made and had to go to three different companies to get the work done, I would be a lot more reluctant. Whereas, if I can walk in and have a single producer or coordinator to carry me through all aspects—and work with people who have experience in film, video and sound—I would go with the turnkey approach. It makes life a lot simpler."

DVD is an emerging industry, one without final standards or established means of content creation. So facilities will work out their own methodologies as audio source elements are delivered in mono, stereo pairs, stems, multichannel, and on DAT, multitrack, ¼-inch, DA-88, magneto-optical or film. POP is a high-end facility, with a nearly unmatched equipment complement for an independent. But one thing Thompson and Feil both emphasize is to not get carried away with the technical mandate at the sacrifice of the "aesthetic" of mixing for a discrete multichannel format. They hope we are beyond gimmicks and have learned something from the introduction of quad.

"I spend a lot of time with the mixers working on, talking about and dealing with aesthetic decisions, understanding how the tracks are going to reproduce and what it might mean," Thompson says. "You can turn people off by ping-ponging sounds, diving across the room, just as easily as you can turn people off by making the dialog too harsh and bright in a theatrical mix. It's the same aesthetics, and that's where mixing talent comes in: How far do you take it, where do you take it and what direction do you go? I don't think it's any different from any other collaborative artistic event that might happen, whether it's performance or painting or mixing a 2-channel music album or a multichannel theatrical mix."

Ted Hall is the lead mixer in Studio A, where he sits behind a 196-input AMS Neve Logic 2 with 24-channel AudioFile, in a room with large-screen projection (16mm, 35mm and Sony VPH widescreen multisync video, with line doubler), Apogee THX surround monitoring and eight-, six- and four-way discrete monitoring. Hall has been with POP Sound since it opened and in that time has restored a number of films, including *Dr. Zhivago*, *Gone With the Wind*, *1941*, *Highlander* and *Singin' in the Rain*, in addition to his work on TV shows, music videos, laserdisc releases and multichannel music mixing. He recently completed a 5.1-channel mix for *Eric Clapton Unplugged*, and at the time of this interview was mixing Madonna's *Girlie Show* for release on DVD.

"The main aesthetic that always comes up is trying to maintain the integrity of the original mix without getting hokey or spreading tracks out way too big," Hall says. "Of the film restorations I've done, I've always gone back and forth to the original mix, even if it was a mono mix, to make sure the balances between music, effects and dialog are correct. That's crucial. If we ever add to it, it's from elements that were in the original track. In some cases, like with *Singin' in the Rain*, I went back to the original opticals and re-synched the music in creating a true stereo track. Even though that wasn't in the original mix, it was there, it was recorded—I didn't make mono into stereo.

"Now it's to the point where we have 5.1-channel music mixes, and the idea is to stay close to the original stereo mix, but still open it up and make a few choices of what can go in the surrounds and what ambiences can go in back," he continues, adding that with all the focus on surrounds, it's the addition of a center channel that provides opportunities for focus and clarity in the imaging. "With Eric Clapton, I had pretty much placed it as if you were in the front, in the sweet spot at the show, where Eric and the other guitar player [Andy Fairweather-Low] would be to your left and right—Eric on the right. And the female singers wrapped around to your left, with Nathan East pretty hard to your right, even to the back a little bit because the stage was curved. The discrete center definitely gives you more focus and clarity in the imaging.

"I've found that the music industry is a little more reluctant to jump into 5.1, just because there are so many more aesthetic values involved," Hall continues. "With film, the basis for 5.1 mixing has been in place for years—the rooms are tuned and set up for a specific SPL, which is matched at every dubbing stage in the world and every theater, so there's a standard style of mixing. When it comes to music, you're up against engineers having their favorite speakers to mix on, no standard levels, etc. Not that there's anything wrong with that. It's just a little more difficult to get music mixers to understand the translation of how this is going to have

—CONTINUED ON PAGE 217

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New Audio Products For Film/Video Production

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Fiber Options (Bohemia, NY) offers the Series 1250SB 12-bit digital transport system for linking composite video and up to eight channels of audio in broadcast facility and remote field production applications. Video bandwidth is 10 Hz to 8 MHz, and audio specs are 20 to 20k Hz; the unit reportedly exceeds RS250C short-haul specs. Price for either transmitter or receiver is $3,500.

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K-Tek (North Hollywood, CA) offers a range of lightweight telescoping microphone boom poles; extended lengths range from just under five feet to over 20 feet. Constructed of eight-layer graphite with a low handling-noise finish, the five models are the K56, K102, K152, K202 and K251 (model numbers approximate extended length in inches). All poles feature slots for anchoring or threading mic cable internally, and options include an attachable base section with internal 48V phantom power. Prices range from $335 (K56) to $750 (K251).

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JBL DMS-1H MONITOR

JBL Professional (Northridge, CA) introduces the DMS-1H Studio Monitor System, a two-way active speaker system designed specifically for center-channel monitoring in LCR and surround sound applications. Based on the DMS-1 studio reference monitor (and designed to be integrated within a DMS-1 system), the DMS-1H includes the same two 14-inch woofers and single HF driver but orients the components horizontally to minimize the cabinet's height. Users may specify either the DSC280 digital controller or SMC24 analog crossover; both controllers are stereo-capable. Price is $5,950.

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AKG (Nashville) introduces the CK 69-ULS dual-length shotgun mic and companion C 480B preamp. The CK 69-ULS features a two-part interference tube: With both sections in use, the shotgun pattern is optimized for a recording distance of 20 to 24 feet; without the extension, the mic is optimized for close-ups or recording at 10 to 17 feet. The C 480B preamp, which provides 48V phantom power for all ULS Series capsules, includes a +6/-10 preamp gain switch and a 12dB/octave (70/150Hz switchable) LF cut filter. Mic and preamp are priced at $785.

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Saturnine (Allentown, PA) offers SmpteCalc for Windows, a $17.95 software utility for calculating and manipulating times in any of four standard SMPTE frame rates (30 non drop, 29.97-drop, 25/24 fps). Using a familiar calculator interface under Windows 3.1 or Windows 95, SmpteCalc can convert a time from one rate to another, multiply/divide times by numbers, add/subtract times, and perform calculations for pasting into other applications (such as word processors or log-sheet programs). All operations are performed via mouse or keyboard.

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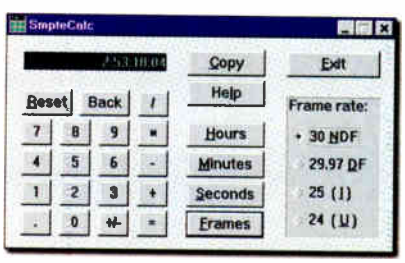

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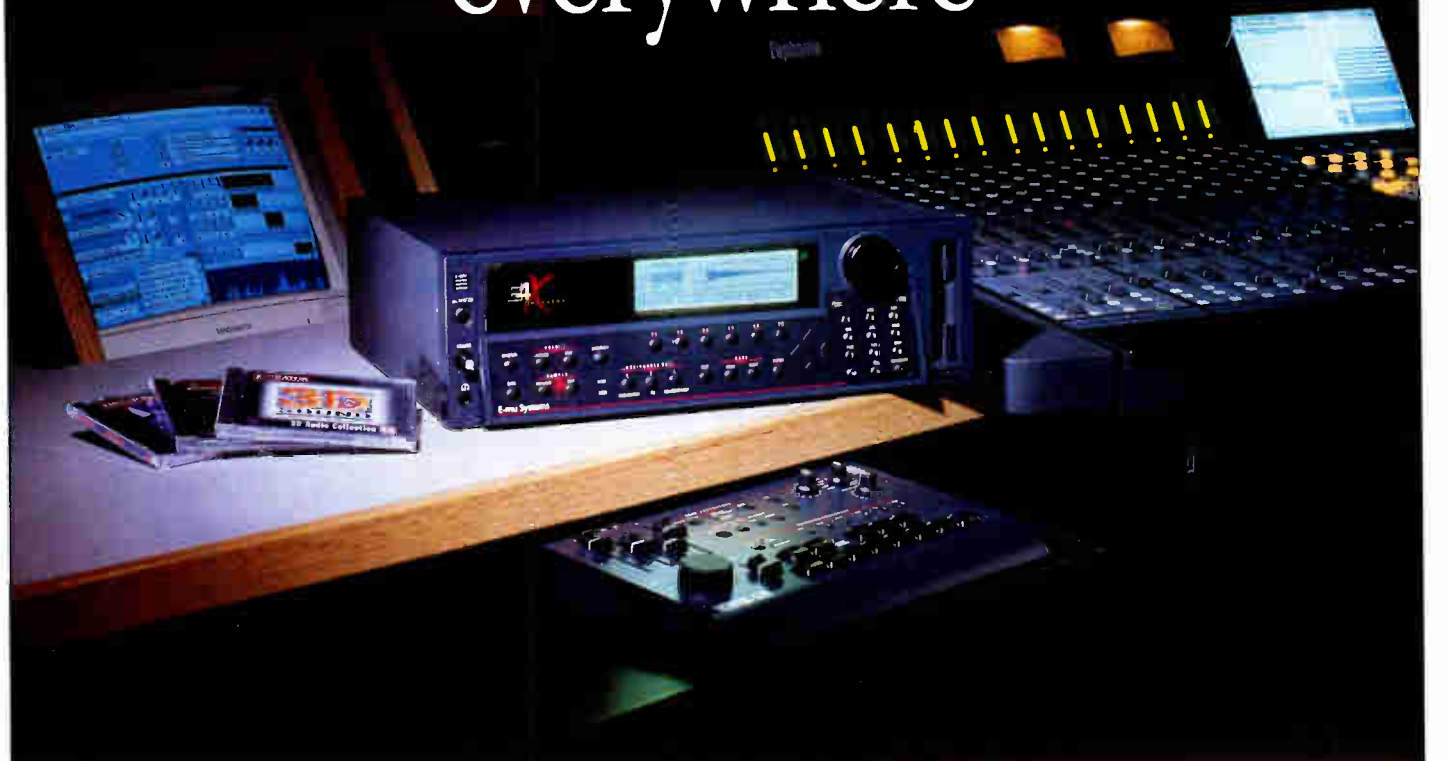

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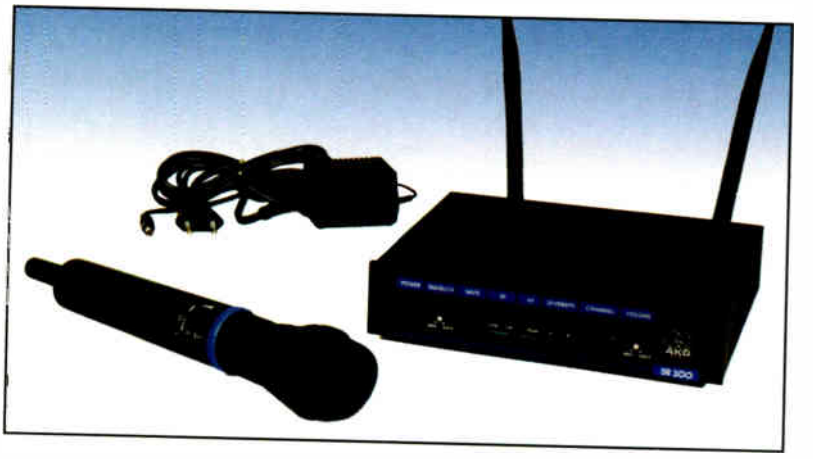
SOUNDCHECK

A BUYER'S GUIDE TO LOW-COST UHF WIRELESS MIC SYSTEMS

Audio-Technica ATW-900 Series

The idea would have been preposterous a few years ago, but it's now possible to choose from a wide range of UHF wireless microphones priced under $2,000. The frequency-adjustable synthesized UHF technology that was first developed for higher-priced UHF systems has filtered down to many of these competitive offerings, allowing several units to be coordinated within the same frequency group. *Mix* last provided readers with an overview of wireless product developments as recently as June 1996, but already there are many new wireless products available.

Before we get to specific products, it's wise to take a look at some of the issues facing buyers. Early wireless systems operated in the high VHF band. Most were fixed-frequency, and no more than a dozen could be operated at once because of local TV broadcasts' VHF frequencies. Until recently, UHF has been less cluttered than VHF, but that is changing. Additional public safety frequencies have been allocated between 470 and 516 MHz, below UHF TV channel 22. Some cellular services in this country are scheduled to use the 900MHz area above UHF television bands.



AKG SR 300

Frequency congestion and interference are the major problems that will face wireless microphone users in the future. It's important to realize that wireless microphone operators are secondary users and enjoy the right to use the airwaves at the pleasure of primary commercial users; the FCC says that they must "operate on a non-interference basis. They must not cause interference to other communications services, and they must accept any interference received." Increasing use of the air waves is beginning to crowd frequencies that were wide open a few years ago. Digital broadcast and wireless communications technologies continue to grow, with market forces staking out various air bands for large commercial interests. As new technologies emerge, there will continue to be changes.

It might seem that frequency-adjustable systems allow users the freedom simply to change channels if there happens to be a commercial user on the frequency selected. While one or two units can be changed easily, multiple wireless systems can interact with one another because of the mathematical relationships between different transmissions and their RF by-products. Although computer applications can be purchased that will predict frequencies occupied by legal commercial users in each geographical area, these need to be constantly updated with changes in broadcast allotments and technology. Many wireless manufacturers offer computerized frequency coordination over the telephone or via e-mail to their customers.

With the move to digital television in the next few years, the number of UHF transmissions will more than double. While TV stations will continue to broadcast the old NTSC television format, those going digital will use another, previously unoccupied frequency for

—CONTINUED ON PAGE 156

BY MARK FRINK

ASLEEP AT THE WHEEL

Captured Live Again in Vegas

Asleep at the Wheel's recent live shows at Arizona Charlie's in Las Vegas were anything but normal gigs for the band, who are celebrating their 27th year of making music. The three nights of performances at the Las Vegas showroom were recorded for a new live album, the group's third, to be released by Lucky Dog/Epic Records. At the same time, four cameras shot the show for a possible TV special, as well as to create video clip material to promote the album. To make matters even more complicated, several Asleep at the Wheel alumni joined the current band on certain songs, as did guests such as MCA recording artist Tracy Byrd, Epic recording artist Wade Hayes and pop vocal greats the McGuire Sisters.

With so much activity onstage and off, the live sound requirements were critical to making the album and video recordings a success. Roy Kircher, the group's production manager and front-of-house engineer for the past four years, had the task of bringing all the details together. Big House Sound, an Austin, Texas-based company that does a lot of the band's shows in Texas, was hired to provide production and assist in the recording end of the project. BHS system engineer Rod Neilsen helped set up the Yamaha PM-3500-58 mixing console for FOH, and provided two new Event Electronics 20/20 monitors, delayed through a Klark-Teknik DN-716 and placed atop the PM-3500's meter bridge, for near-field monitoring.

PHOTO: CHRIS GOSFIELD

Above: Ray Benson. Left (l to r): Rod Neilsen, Roy Kircher, Jeff Tucker, Tracy Killebrew

Kircher used an Eventide H-3000 for vocal reverb, along with a Yamaha SPX-990 to provide a little delay dump back into the reverb send. Another 990 helped blend the instruments to give the Wheel their trademark big band sound. The Yamaha REV7, which works well on drums with a short 1.2ms reverb decay, added a little spark to the kit's sound.

Drummer David Sanger's Fibes kit was miked with a Sennheiser 421 on the kick, a Shure Beta 56 on the snare, a Shure SM98 on the toms and SM81s on the hi-hat and overheads. "I depend a lot on the overhead mics to get the drum sound that matches Sanger's style," Kircher explains. "Sanger plays a mixture of styles, and by using the overhead, I can get a great jazzy snare tone that blends well with the rest of the kit."

Though Kircher used a Sennheiser 409 on AATW leader Ray Benson's guitar amp—a combination of two Fender four-by-ten cabinets powered by a Fender Twin cut down to just the amp—most other instruments were taken direct. Avalon U5 Ultra-five Class A direct boxes were used on the fiddle rigs, while Cindy Cashdollar's steel guitar rig got Countryman Type 85s. "We came right off the speaker outputs of her Eden Highway Man amp into the DIs to get that nice, full tone she's looking for, and she loves it," explains Kircher. Countryman DIs were also used on the second steel,

BY MARK FRINK

—CONTINUED ON PAGE 219

SOUND ALONG THE STRIP

CLUB SYSTEM UPGRADES ON SUNSET BOULEVARD

Few half-mile stretches on the planet can match the mystique and allure of L.A.'s Sunset Strip. It's a place where bands break out or break down, where promoters fight for Friday-night slots, where labels come to find the "next big thing." It's a walk through the nostalgia of Jim and Exene, Elton and Rickie Lee, Kris and Tracy, Tom and Warren and Axl. It's a scene that once rocked the edges of psychedelia, burned through the initial burst of punk, powered its way through deafening metal, disappeared with dance, then revived itself with ska-meets-punk-meets-rock-meets-rap—and every variation in between. The stories have become legends, the legends have become stories.

Gazarri's is gone, and in its place now stands the ultra-posh Billboard Live. But you can still catch local acts at 9:30 at the Troubadour (okay, we know it's slightly off the Strip), an 11:00 at the Whisky, midnight at the Roxie, a 1 o'clock at the Viper Room, then finish it off with late-night pizza or a filet that can't be beat at the Rainbow Room. Or if showcasers are more your style, there's the early headliner show at Billboard Live, complete with video in your table, followed by dancing to the low-end punch at the House of Blues. On the Strip, you can seek out the gutter or flit through the cocktail crowds, and it all sounds good.

There seems to be no question that the opening of the House of Blues in 1993, with its high-end Yamaha system installed by A-1 Audio, upped the ante for club sound along the Strip (the system has since been replaced with an all-JBL package). Shortly thereafter, the Troubadour installed a flown EAW system, Billboard Live opened with a Yamaha/EAW combination, the Whisky put in an Amek 501 board with Recall ability, the Roxy installed a Clair Bros. P-4 main system, and the Viper Room completely revamped its house with Electro-Voice MTH-1s and MTL-1s and a Midas XL-200 board. Certainly, not all of the recent activity is in response to the House of

Top, the E-V system at The Viper Room. Above, the JBL system at House of Blues. At left, EAW in Billboard Live. All were installed by A-1 Audio.

BY TOM KENNY

POWER-Q™ ADF-4000 • 24-BIT, 2-CHANNEL

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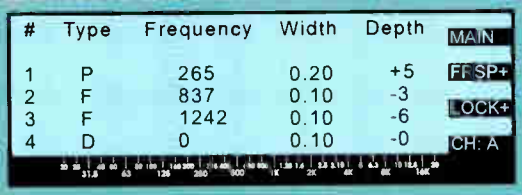
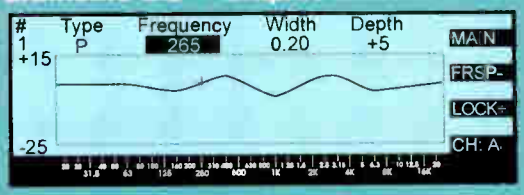
1. FBX/Parametric EQ — List View



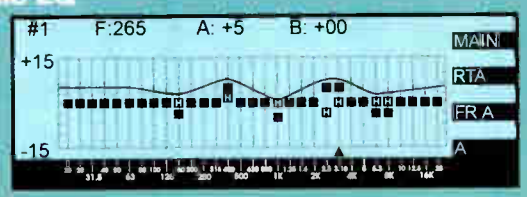
Tabular editing of 12 digital filters, switchable to parametric, fixed FBX, or dynamic FBX. Patented, adaptive FBX filters find & eliminate feedback, providing more gain, improved clarity, and more wireless mic mobility. Adjustable FBX sensitivity and tracking.

2. FBX/Parametric EQ — Graphic Edit View



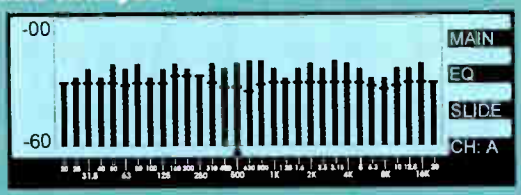
Click & Drag graphic editing of parametric filters; grab-a-filter or select any point on curve to edit using cursor keys & datawheel. Shows response curve as you sweep filter center frequency, width, or depth. Filter ranges: 20 to 20kHz, +12 to -80 dB, 1/100 to one octave.

3. Graphic EQ



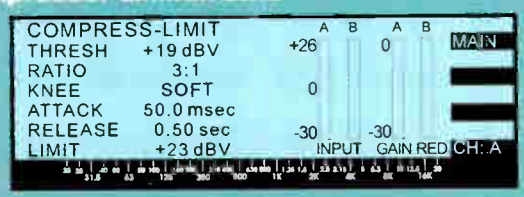
Edit 31 bands per channel simultaneously on same screen. View actual frequency response curve as you adjust filters. Edit channels individually or LINK them together. Edit one channel and COPY it to the other. View POWER-Q curves or room curves.

4. Real-Time Analyzer



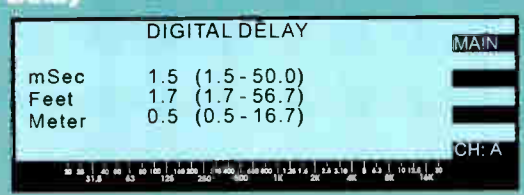
31-band, digital, filter-based, 1/3 octave ISO. Choose A, B, or C weighting, absolute/normalized display, slow/fast response, pink or white noise generator. Superimpose graphic EQ on RTA display** for precise viewing and editing of frequency response.

5/6. Compressor-Limiter/Gate



Control compressor threshold, limiter threshold, compression ratio, attack & release time, gain and peak limit for each channel. View input and output levels, and gain reduction. Adjust gate threshold, attack, release.

7. Digital Delay



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Blues, which, as a 1,000-seater, occupies its own between-a-theater-and-a-club niche. Much of it has been driven by the revived L.A. music scene and competition for clubgoers, which has also led to a flood of new services for touring artists, such as video shoots and Web chat rooms.

The most intense competition for local and touring acts really takes place among the Whisky, Roxy and Troubadour, as has been the case for years; to some extent, Johnny Depp's Viper Room falls in with this trio, though they don't regularly feature the four-act nights. The House of Blues gets the headliners, and Billboard Live gets the showcases, with a seeming lock on broadcast specials. (Howard Stern broadcast his radio show from the stage to a full house, promoting the opening of *Private Parts*, for two days while we were in town, beginning at 3 a.m. to hit the East Coast drive time slot.) All of the engineers we talked to on a recent two-day/night waltz through the Strip welcomed the competition, with the overriding belief that more clubs means more bodies on the boulevard.

Before starting the tour, we stopped in for a martini at Barney's Beanery on Santa Monica, a legendary watering hole that opened in 1923 as a speakeasy and made it straight through Prohibition. JoLynn the bartender said that according to the old-timers, this is the last place Janis Joplin was seen alive. Apparently, there was a recording studio across the street (anyone know the name?) where the IHOP now stands, and Janis stopped in after a session. Who knows whether it's true, but it sounds like a story that's gotten a lot of mileage.

Next stop, the Roxy, which opened in 1973 with Neil Young and Crazy Horse. House engineers are Chris Raughley and Eddie Oertell, who has been with the Roxy 6½ years and now pulls off that rare combination of engineering and booking for two rooms. Oertell is a self-described "low-end nut," and he has the coveted Aura Sound subwoofers to prove it—"four 18s per side, 4-inch voice coil; they take that massive low end and just hold it." P.A. is a Clair Bros. P-4 system, with four cabinets per side, each housing two 12-inches for the low-mids, one 12 for the high-mids, and a 2-inch driver—purchased, believe it or not, from a ride that closed at Disneyland. All power is from Carver 1.5 modified amps, with 20,000 watts to the main system and 4,500 to the monitor rig. Eight monitor mixes to the stage, Clair 12AMs. Klark-Teknik DN360 EQ for the front of house, Ashly EQ on the monitors, dbx 160s for house, Apex compression for monitors.

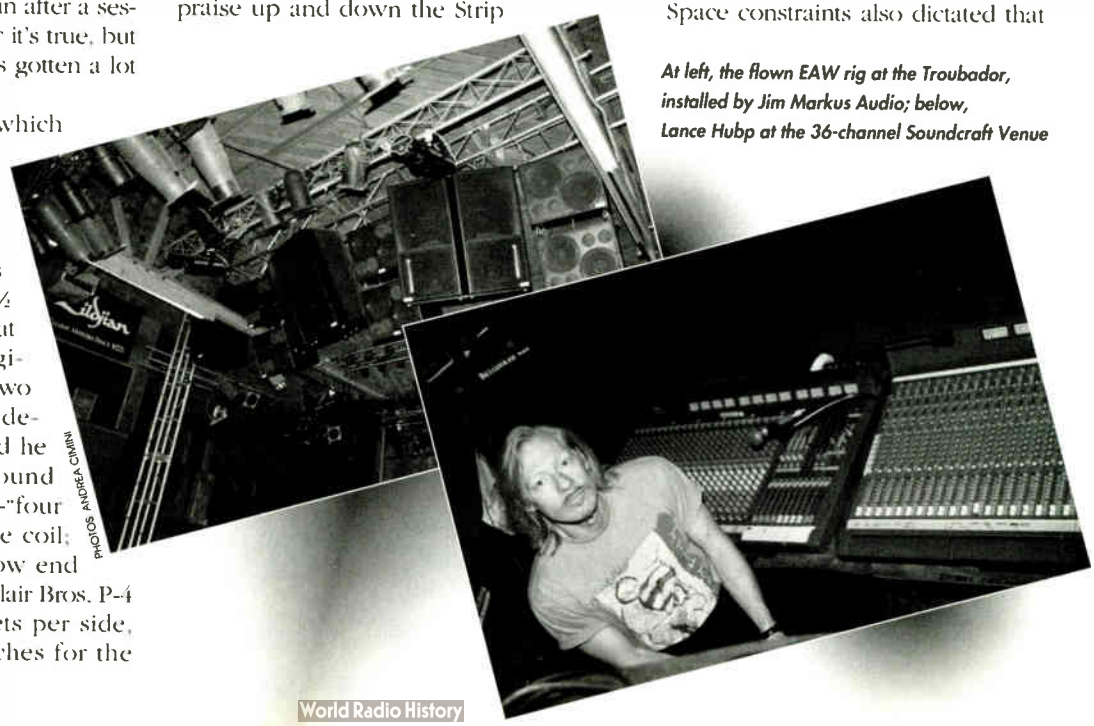
The monitor board is a Soundcraft 800B, modified to eight sends. FOH board is a Soundcraft Venue, though by the time you read this, the club is expected to have brought in a Yamaha 3000 and shifted the mix position down one step and over about six feet. Oertell says that with three more additions, the club will be complete, and "it will kick." First is the 3k: "It would be great because of the VCA groupings and the extra channels." Second would be an Omnidrive crossover: "It's just a really sweet model, and it makes the P.A. more enhanced. It's all built-in compression, all-protecting, and it would free up all the other compression for front-of-house." Third would be the addition of a small center cluster to fill out the vocals: "The room is so true stereo that I can stand right in the middle and it's just a little bit off. So if we put a little center cluster in for the vocal, it will be ideal. We're talking with Clair Bros. because they make a small box, and we'll see if we can match it all the way around. If not, we'll probably go with the KF-300s from EAW."

By the way, the room sounds great (voted Number 2 for sound in a recent *Music Connection* poll) and receives praise up and down the Strip from other engineers. Eddie turned up the low end for me during the Aquabats' set, and it does, indeed, thump you in the chest and hold it.

Down to Santa Monica Boulevard and Doug Weston's Troubadour, known affectionately as The Troub, which is celebrating its 40th anniversary this year. And booking manager Lance Hubp has big plans, including a documentary film chronicling the history of the club and a series of eight to ten showcase nights for returning heroes such as Kris Kristofferson. (During our visit, he was working on getting Elton John, who made his U.S. debut at the Troub.) You can't buy a slot at the Troub, according to Hubp, and business is roughly 75% touring acts.

Legend would lead you to believe that it's a huge room, but it's not. It's a 500-seater, packed, and the throw from the stage to the bar area (and the balcony above) is only about 20 feet. So when they put in the EAW system—designed and installed by Jim Markus of Jim Markus Audio and Lighting Systems—they decided to fly it. The mains comprise six MH662s, with dual 10s and 2-inch throat drivers, and six SB250s with dual 15-inch drivers. Custom subs on the floor each contain four 15-inch JBL drivers. Wedges are three EAW SM400iHs, two EAW SM200iIHs, one EAW SM500iV and a Troub custom monitor. Four Crest 8001 amps power the mids-lows, with two Crest 4601s for the highs; subs are powered by two QSC MX1500s. A few adjustments are planned for the array to spread the coverage a little wider, and some vocal fill will be added to the center, Hubp says.

Space constraints also dictated that



PHOTOS ANDREA CIMINI

At left, the flown EAW rig at the Troubador, installed by Jim Markus Audio; below, Lance Hubp at the 36-channel Soundcraft Venue

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the mix position be placed at balcony level, off to stage left and about ten feet from the left-most MH662—not ideal, as Hubp admits, but he says they compensate by walking the floor during soundcheck and educating visiting engineers. They recently added a second tier to the mix position, so that the lighting board has its own spot, and the 36-channel Soundcraft Venue and Yamaha MC2410 monitor board can sit alone. "The level of most of the audio engineers who sit at the desk is so high that we seem to have good mixes with pretty high regularity," Hubp says. "If it's not a good mix, it's generally someone who's being lazy by virtue of not getting to know the difference between the mix position and center-floor or center-balcony." Although Hubp and his three staff engineers have been pleased with the Venue, plans call for an upgrade because of the need for more channels. And there are plans to add vocal fills and more sidefills.

On the night we visited, Cibo Matto (Japanese electronic-type speed-metal-with-ballad-and-marimba band) played to a packed house. Sounded great right in front of the bar, in the center, with a nice spread and coherent range. But it varied to the sides and the back of the balcony. Good system, tough room. This club received a Number 2 overall rating in *Music Connection*.

Back up to the Whisky, perhaps the one club outsiders most associate with the Strip. The club opened in 1964 with Johnny Rivers, then closed for live performance in favor of dance in the early '80s. It reopened in 1986 with female metal band Vixen, according to Carson Price, who helped create the P.A. through Professional Sound Services. The second night featured then-unsigned local bands Guns N' Roses and the original L.A. Guns. Yow!

Live mixer Louis Stetzel was there for the reopening; he was joined in 1990 by Andy Ireland. Today, the pair run house sound when not on the road with Los Lobos. House mains are custom-built, with all JBL components, except for the subs, which incorporate 18-inch Gauss drivers. The custom monitors are indestructible, with special cabling/connectors and protective grilles that allow them to be kicked, rolled, knocked, whatever, without going down or losing a horn. They were built by Mammoth Audio Systems, as were the double-12s that were hung to make it a true four-way system. All QSC power, including 11 Series 1 units from the mid-'80s that were recalibrated a year ago.

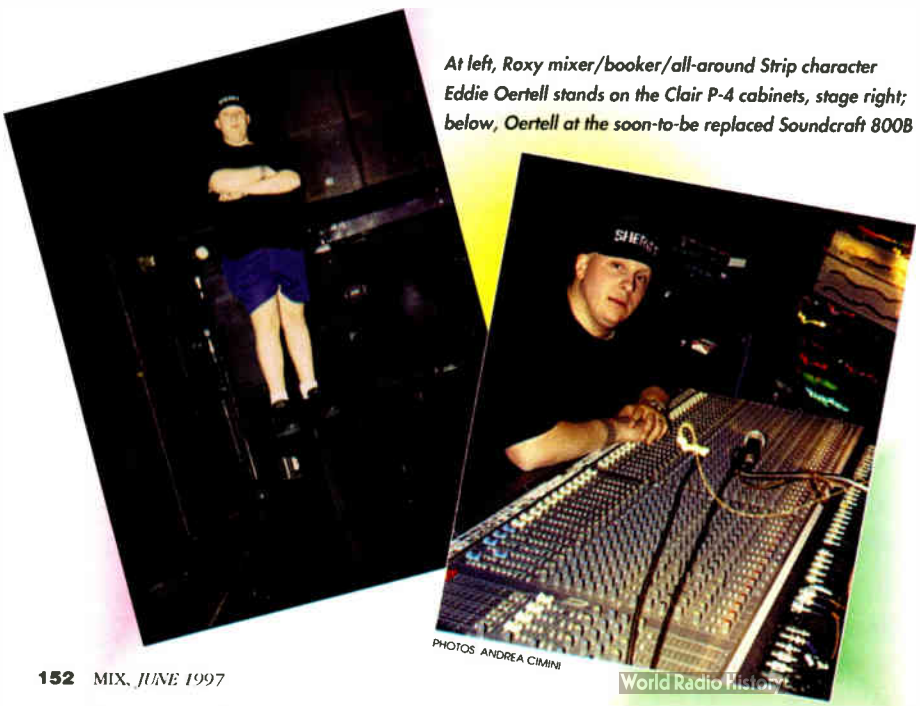
The big news at the Whisky, however, is the Amek 501 Recall board, with Showtime automation run through a 486 DX2 66MHz PC. (The Whisky apparently has a relationship with Amek and is in line for a prototype of the company's digital monitor board, coming soon.) "Everything is so much easier now," Ireland says. "When national acts come in, there's no more channel repatching—we can save their channels, and there's no longer any question of trying to follow a little paper map to get settings back. And there's no more crawling around in the back of the board to patch gates and compressors. It's faster, easier and more accurate. Bands that play here frequently and who know they won't always be able to make soundcheck will keep their settings stored in our hard drive. And on top of that, the board just sounds great. The mic pre's are really great-sounding, and having as many compressors as you need really helps when a band comes in and you don't know what they're going to have or what it's going to sound like."

The Whisky has always prided itself on being leading-edge, both in terms of the music (where their motto is "If you saw them at the Whisky, it was probably before they made it big") and in terms of club services. Joe "Middle Man" Czebely rents a small room in the back and has set up nightly four-camera shoots, with live Video Toaster switching, so that bands can walk out with a VHS tape for a mere $75. And the Whisky has set up its own home page, with its own chat room. Try www.whiskyagogo.com.

The newest club on the Strip is the truly entertainment-oriented Billboard Live, complete with Jumbotron and video services/broadcast capability rivaling many TV stations. For that matter, their equipment complement would be the envy of many recording studios or big-time touring acts. No expense has been spared.

After a deal fell through with JBL-Soundcraft, production manager Pat Pennington and chief engineer "Pilgrim" Jim O'Brien turned to A-1 Audio and spec'd out their ideal, catch-all package. "We wanted something that was user-friendly to 99 percent of the engineers out there," says O'Brien. "We don't want to unload a truck each night, so we went with EAW—most people feel very confident with EAW. Same reason behind going with the [Yamaha] 4000 for the front of house and the 3500 52x18 for monitors."

The FOH system comprises EAW KF850s, SB180 subs, KF300s and JF260s; the monitor rig includes JF260s, SM200iVs, SB180 subs and KF300s for sidefill. All is powered by Yamaha H5000 amps. It's a vertically oriented room, so there are essentially two stereo systems to cover the upstairs restaurant and the downstairs dance floor. The blend between the two gives the FOH mixer—mixing from the former VIP area, midway between the two—a pretty good idea of the room, O'Brien says. "I tell engineers that if it sounds good at the mix position and is really bottom-heavy, then it's probably okay downstairs. Don't be afraid of low end at the mix position, because by the time you



At left, Roxy mixer/booker/all-around Strip character Eddie Oertell stands on the Clair P-4 cabinets, stage right; below, Oertell at the soon-to-be replaced Soundcraft 800B

PHOTOS ANDREA CIMINI

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get downstairs, it's right in the pocket. Fidelity is what I go for. I'm not necessarily a volume engineer. The audience could get blown away by this system, but I think it should be more of an experience, and it should be comfortable."

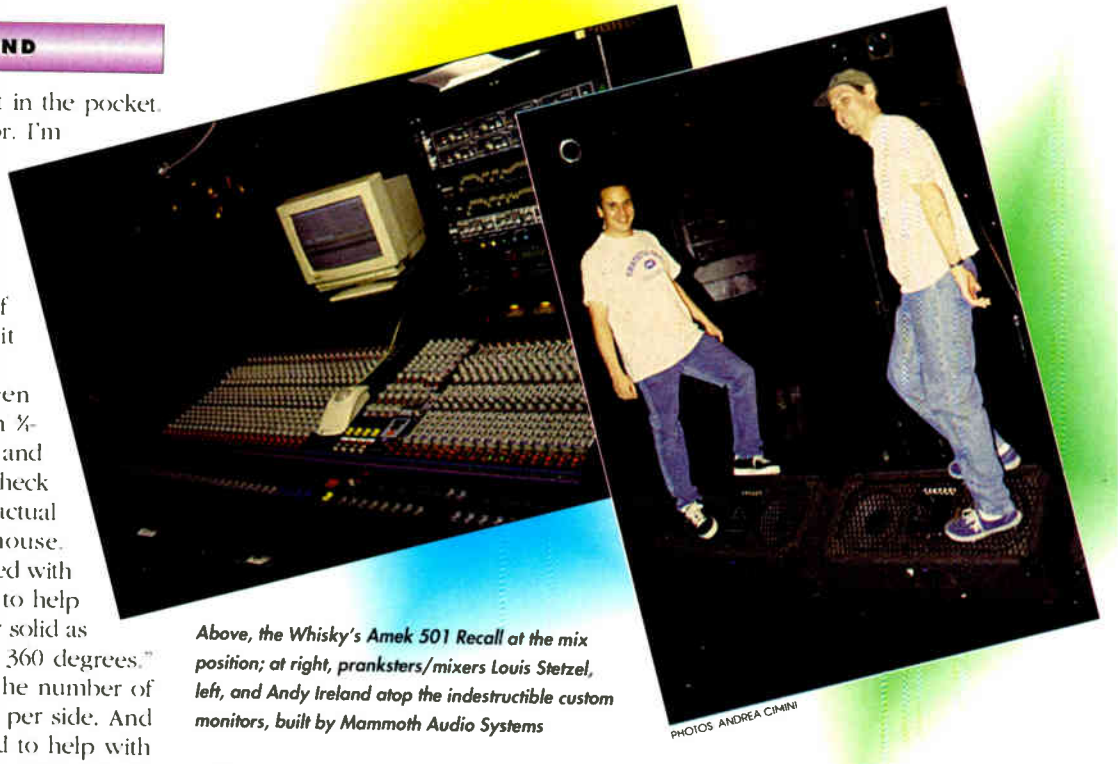
The room has been acoustically treated with ¾-inch wallboard and felt, and O'Brien says that soundcheck is surprisingly close to actual showtime, with a full house. The stage has been packed with foam since the opening to help deaden it a bit—"it's now solid as a rock, and it still turns 360 degrees." Plans call for doubling the number of subs by bringing in four per side. And some 850s will be added to help with definition, though O'Brien says they are quite happy with the coverage as it stands. Also, the mix position will be lowered about two feet to pick up more of the 850s from in front.

Billboard Live debuted at Number 3 overall in the *Music Connection* ratings and is leading the pack in lighting and tying for third with the Troub for sound.

Next up, the House of Blues, the largest venue on the Strip, with a capacity of 1,000 putting it in that unusual niche between a club and a soft-seater. HOB attracts headliners, to be sure, and hosts its share of industry parties. On the night we were there, the post-Soul Train Awards party featured a George Duke band and Mary J. Blige.

The Yamaha system that opened the club has been replaced (except for the 56-in 4000 FOH console and the monitor board, which is a 48-in Soundcraft SM24) with an all-JBL package, based around the 4892 box with a 90-degree, 14-inch and a 1-inch compression driver—three boxes per side. The subs are the JBL 4719s, with the 2242 heavy-duty 18-inch woofers replacing the stock model. Audio manager Anthony Roberts says he expects to add up to another pair per side by the time you read this, to take care of a "hole" on the dance floor. Original installation and the revamp were handled by A-1 Audio.

"Like most clubs, it's not designed for sound," Roberts says. "It's more designed for the look. So there are some tricky places in the room. Plus, we have the swinging bar upstairs, and it has this aluminum diamond-plate underneath,



PHOTOS: ANDREA CIMINI

Above, the Whisky's Amek 501 Recall at the mix position; at right, pranksters/mixers Louis Stetzel, left, and Andy Ireland atop the indestructible custom monitors, built by Mammoth Audio Systems

which tends to rattle a bit during soundcheck with the low end. And it reflects the high end. But we're fixing that by insulating it with some rubber, and it's not a problem once the bar opens. It's only during soundcheck.

"We did make some adjustments once we had the new system on the floor—mainly compression levels and slight EQ changes, and then some balance changes in the delay speakers for the restaurant and bar areas," he continues. "A lot of engineers who were in and worked the Yamaha system, then come back on the JBL system, are just loving it." And audiences seem to be loving it, as well. The *Music Connection* ratings placed it Number 1 for sound.

Finally, the tour ended where many L.A. clubgoers end their evening, if they can get in—the Viper Room. An awful lot of hype surrounds this place, but until relatively recently, it didn't have the sound system to match the hip fever. It does now, through the concerted efforts of the club's managers and engineers, Mark IV Audio, Europe, and A-1 Audio, spearheaded by Roger Gibbons and Bobby Ross.

The room is not large at all, but there's not a parallel wall in the house and it seems to always be packed with the maximum 350 bodies. The image is solid throughout, with a particularly sweet center spot that is filled out by a small cluster of two Electro-Voice Sx200a cabinets. The main system comprises MTH-1 cabinets, flown two per side, with three MTL-1 subs, each incorporating two 18-inch woofers. Wedges are the A-1 custom DFM12s, with a typical configuration of six ringing the relatively small stage, where the drummer beats from a slight pit, rather than a riser. The crossover is a Klark-Teknik DN800. Amps are EV P3000s and 2000s.

The Mark IV connection led to the purchase of a Midas XL200 FOH console, which doubles as a monitor board, augmented by a Soundcraft Spirit when more sends are needed. The mix position is rather awkward, as it sits on a level with the flown EVs, tucked just under the ceiling in a booth. House engineers Frank O'Reilly and Joe Stella have worked out the curves and know the room intimately, however, and any EQ adjustments (Klark-Teknik DN3600) can be made remotely from the floor.

You'll all be happy to know that disco is back in a big way in L.A., with dance parties at Billboard Live Wednesdays through Sundays and lines outside many other venues. On Friday nights at the Viper Room, Booty Quake holds court ("I don't even have to soundcheck these guys anymore!" O'Reilly screams over the opening song adjustments), thumping out the low end. The room, which has remarkably clean definition, can handle pretty powerful lows, though most performers will never reach the point of truly pushing the system.

• • •

Many thanks to Sara Elliott and Lyle Dick of A-1 Audio; to Terry Lowe and Mari Stancati of *Mix* L.A.; to Andrea Cimini for walking through empty clubs to get the photos; and especially to the engineers. ■

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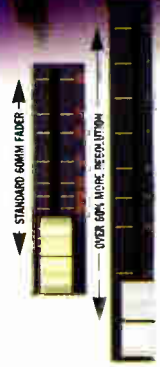

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—FROM PAGE 146, WIRELESS MICROPHONES

their ATSC DTV transmission. Most will make this transition because the digital technology allows the broadcast of extra channels of information services that can be sold commercially, like sideband SCA on FM. Specific frequency allotments have not been determined yet, but the proposal is to pack DTV into channels 7 through 51 (174 to 698 MHz). The FCC calls this "a core spectrum approach that minimizes digital allotments at channels 60-69." They also note that "only 97 of the almost 1,600 television licensees [currently] operate on channels 60-69" and "a benefit of this [core spectrum] approach is that substantial amounts of [the TV 60-69] spectrum could rapidly be made available." Available for what is not yet clear. Other commercial transmission services, no doubt. Interested readers may want to check out the FCC's Web site (www.fcc.gov). In the meantime there will be some jockeying as broadcasters get assigned temporary second channels that they eventually may give up.

The FCC's allocations have not yet been decided, but it is likely that lower VHF stations (channels 2 to 6) and higher UHF (channels 52 to 69) will get assignments for their second frequency in the new "core spectrum" between channels 7 and 51. What is clear is that frequencies above TV channels 51 (698 MHz and up) are going to be a better choice for UHF wireless microphones in the near future.

Systems Wireless Ltd. (www.swl.com) in Herndon, Va. is a leading supplier of wireless systems to the broadcast and entertainment market in the U.S. Dan Smith of SWL notes that in the Washington D.C. area, channel 32 has already begun testing DTV at channel 34, causing at least one surprise recently, as these tests are unscheduled and unannounced. He recommends that before purchasing, users take a look at which channels local UHF broadcasters are operating on and stay away from both those and adjacent frequencies covering the next several channels. He further notes that due to the character of digital transmission, the signal includes significant harmonics that would affect adjacent frequencies.

The cheapest product is not always the best choice. The dynamics of the singing voice typically place a higher demand on a wireless' audio processing than a speaking voice. The most critical and often overlooked adjustment to a wireless mic is the gain at the transmitter, as many singers will go from a whisper to a scream over the course of a performance. Everyday use of a wireless system places further demands on the workmanship and construction of a product than occasional or once-a-week applications. Equipment quality will also determine its performance in difficult RF situations. The selectivity of its RF filters will determine susceptibility to transmissions at adjacent frequencies. Multiple helical resonator coils are used in high-performance systems to provide high-Q filtering of transmissions and noise at neighboring frequencies, especially at the "image frequency" where it is most susceptible.

It is impossible to predict the performance of various UHF products with complete accuracy. Short of using on-site RF test instrumentation, trying products out in the environment in which they'll be used is the best strategy to protect your investment. Multipath reflections in the room and RF interference from other sources can range from nonexistent to unpredictable. Major metropolitan areas have high ambient RF noise levels across the entire spectrum, produced by a wide variety of commercial and industrial sources that can even include the computer on your desk. Traveling from city to city requires the facility to change frequency in response to changing RF competition. And given the rigors of touring musical or theatrical applications, a realistic safety margin is one spare for every two operational units.

There is no substitute for taking prospective purchases for a test drive around its intended venue of use. Professional users should ask their vendor for a trial or demonstrator unit to evaluate prospective purchases in their intended environment. New purchases should be allowed a full week of trial and evaluation before going into critical service, allowing time for unforeseen problems to be addressed and corrected. Major considerations include commercial broadcasters in the area, availability of preferred capsules or mic elements, the user's interest in growing a system to provide multiple channels, and the need for frequency agility for touring or traveling purposes. The fol-

NEWSFLASHES

The **Van Andel Arena** in Grand Rapids, MI, which opened last fall, features an Electro-Voice PI Modular Series loudspeaker system. The semi-distributed system is divided between a center-court array flown from the scoreboard and 14 distributed arrays positioned to follow the outline of the hockey rink dasher boards and providing coverage for the house seats. The arena is home to the International Hockey League's Grand Rapids Griffins and the Continental Basketball Association team The Hoops, but also has hosted entertainers such as Neil Diamond, Reba McEntire and Disney on Ice. The venue and system were designed by the **Acoustical Design Group** of Kansas City, MO...Spirit by Soundcraft reports that **Soundgarden**'s most recent (and final) U.S. tour carried a 40-channel Spirit 8 console. All gear for the tour was provided by **Showco** (Dallas); the front-of-house engineer was Mark "Naf" Naficy, who mixed the band live for ten years...The **Lyceum Theatre** (London, UK) production of **Jesus Christ Superstar** is employing eight Aphex Model 106 Easyrider 4-channel compressors for vocals. The entire sound system at the theater, which was installed specifically for this show, was designed by **Richard Ryan**...The P.A. system for the **Espy Awards**, held at **Radio City Music Hall** in February, was provided by sound company **See Factor** of Long Island City, NY. The system included 16 V-Dosc speakers powered by QSC PowerLight 4.0 amplifiers...Meyer Sound Laboratories (Berkeley, CA) reports that survivors of last winter's Northern California flood include the ten-year-old Meyer UPA speakers at **Marine World Africa USA** (Vallejo, CA). The two flown systems at the popular theme park are exposed to the elements 24 hours a day, and park show producer Mike Owyang says they "still sound great."...**Rote Fabrik** (Zurich), the largest live music club in Switzerland, has a new sound system that was designed and installed by **MAMA-Trading** of Emmen, Switzerland. The P.A. for the 2,000-capacity room includes eight EAW KF850 three-way full-range loudspeakers, split into two arrays and flown on each side of the stage. Four double 18-inch EAW SB528 subwoofers are situated on the stage beneath each of the flown arrays. MAMA-Trading also installed a sidefill system comprising two EAW KF650 three-way speakers and two SB260 subwoofers per side of the stage. ■

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lowing mid-to-low-cost UHF products are either out now or soon to be released.

AKG's (Nashville, Tenn.) WMS-300 UHF wireless system, now well into its second year, operates in the 800MHz range. Available with AKG's C5900 condenser capsule, the system lists for $1,899. The half-rack receiver has a front-panel rotary switch to select one of sixteen available frequencies. Recessed pots allow adjustment of squelch and output level, and LEDs indicate "low or OK" RF level, audio signal and clip, diversity channel and automatic muting. The HT300 handheld transmitter runs on three AA batteries, with alkalines offering up to 12 hours and rechargeable NiCads over 5 hours of use. The handheld's capsules are interchangeable, and the mic can also be purchased with a dynamic element, either the D3700 or D3800 "TriPower" capsule (which can be purchased separately at $129 and $219 list). One of 16 frequencies can be selected via four internal DIP switches, and up to eight systems can be used simultaneously within the same 20MHz-wide band. The PT300 body-pack transmitter can be used with a variety of AKG's condenser lavaliers or Series II MicroMics, offering many AKG microphone combinations.

Audio-Technica's (Stow, Ohio) UHF system, introduced at Winter NAMM, operates in one of two different UHF bands, 792 to 806 MHz (USTV channels 67 to 69) or up higher at 944 to 952 MHz. In each band, there's a choice of ten fixed frequencies, for a total of 20 possible simultaneously operated systems under optimum conditions. The ATW-0951 UniPak™ body-pack system ($599 list for entire system) comes with an HRS connector that accommodates the wide variety of Audio-Technica "cW" accessory microphones. The ATW-0952 handheld system ($649 list) comes with a neodymium dynamic mic element. Both transmitters have a high and low position for changing the transmitter's power to increase battery life from eight up to ten hours, while shortening the system's range to 200 feet. The AT8633 rackmount adapter kit holds two receivers.

Azden 411 URD Receiver

Azden (Franklin Square, N.Y.), which started as an OEM manufacturer for several well-known brands, has spent the past dozen years establishing its own name with VHF products. This year the company introduced its first UHF product. Azden's 411 UDR ($589 list) is a crystal-controlled, PLL synthesized UHF receiver with 63 user-selectable frequencies in the 794 to 806MHz band (USTV channels 68 and 69). It has both ¼-inch and XLR output jacks, volume adjustment, and it can be rackmounted using the 321RK rackmount kit. The 41HT handheld transmitter ($399 list) features a supercardioid dynamic element and runs more than six hours on two AA alkaline batteries. Azden's 41BT body-pack transmitter ($319 list) runs over six hours on a 9-volt alkaline and has a mini-jack to accommodate a lavalier or headset mic.

Beyerdynamic's (Farmingdale, N.Y.) brand-new U 500 UHF wireless mic

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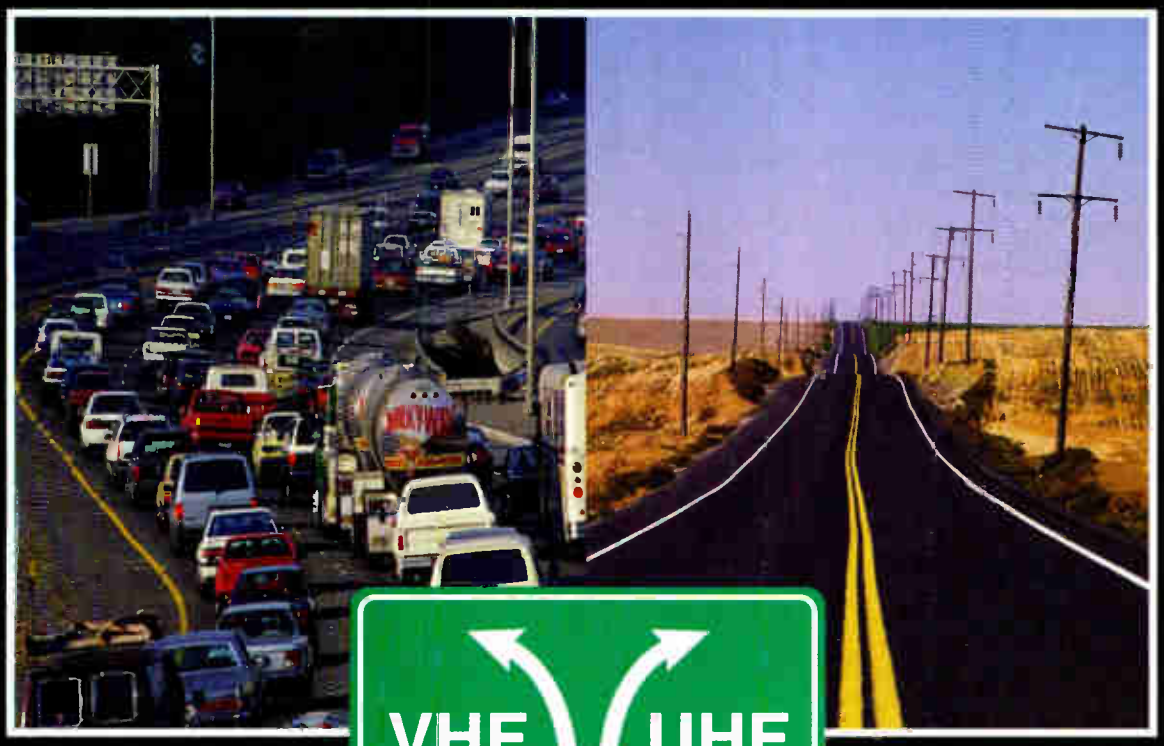

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series, manufactured at the company's UK facility, will be available in August. The new handheld and body-pack transmitters operate in the 798 to 830MHz range (USTV channels 68, 69 and above) on one of 16 frequencies. They can operate for eight hours on a 9-volt alkaline battery. The handheld has an electret condenser capsule, while the body-pack is supplied with a 4-pin LEMO connector to accommodate the wide variety of Beyerdynamic miniature mic elements. A flashing LED warns when battery life is down to thirty minutes. They match with the NE 500 UHF receiver, a half-rack design of which no illustrations are yet available. Target price for systems will be in the $1,600 to $1,900 range.

Electro-Voice and Vega (both dist. by EVI, formerly Mark IV Audio, Buchanan, Mich.) brands have become synonymous, and the transition in Mark IV's ownership seems to finally cement the connection between the two lines. The Vega-branded U2020 system ($1,200 to $1,370 list, depending on capsule), out for its second year, is available through both EV and Vega

Vega U2020

dealers. Two numbered rotary controls combine to 100 different frequencies over three UHF channels in the low sixties. The U2020 can be ordered in one of two different frequency groups, 746 through 766 MHz (USTV channels 60 to 62), or 762 through 782 MHz (USTV channels 63 to 65), and up to 22 channels can be used at once. It features dual-mode squelch and uses a variant of Vega's Dynex III noise reduction, called DX-20. The handheld transmitter is available with either an N/Dym 757 or 557 capsule and runs over seven hours on a 9-volt alkaline battery. Electro-Voice makes available an informative 20-page technical paper on wireless microphones written by former Vega president Gary Stanfill.

Lectrosonics (Rio Rancho, N.M.), a high-end manufacturer for the film and broadcast market, takes a different approach to low-cost UHF by employing a fixed-frequency design with tight filters. Lectrosonic's 190 Series uses a sensitive, highly selective fixed-frequency design employing a 5-pole helical resonator front end, 6-pole crystal filters in the receiver and a hefty 70-milliwatt transmitter, allowing them to work in challenging RF environments. The exclusive dual-band companding employed by Lectrosonics employs distinct process-

—CONTINUED ON PAGE 218

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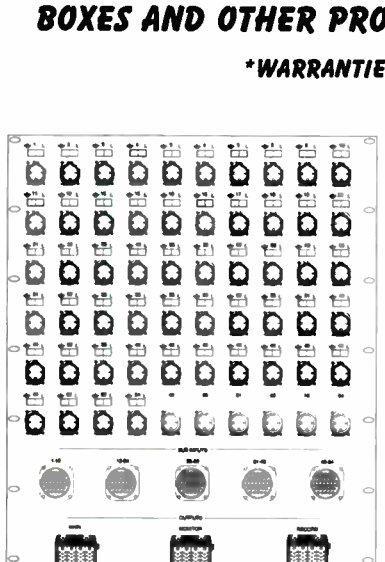

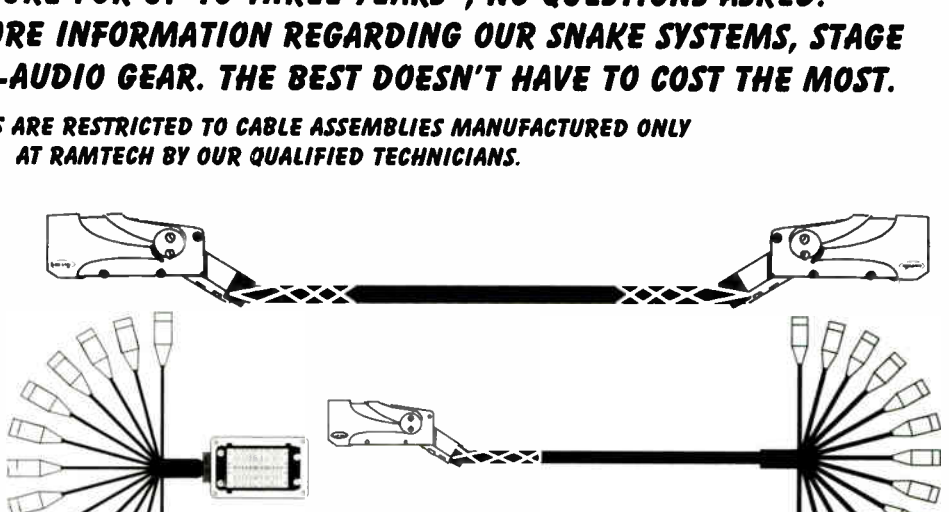

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New Sound Reinforcement Products

TECHNOMAD PARIS 616

Technomad Inc., (Hatfield, MA) introduces the Paris 616, a full-range loudspeaker designed for use in under-balcony, delay fill and distributed sound applications (70-volt version available). The Paris 616's fully sealed, ½-inch-thick, milspec, polyethylene cabinet measures 26.1x8.3x7.5-inches (HxWxD) and weighs 25 lbs. Components include two polymer 6.5-inch mid/bass drivers and a 1-inch ceramic high-frequency driver mounted on a 90°x90° horn. Frequency response: 65 to 18.5k Hz; long-term SPL: 116 dB. The Paris 616 incorporates various mounting fittings, two Neutrik NL4MP Speakon™ connectors and is available in 13 colors.

Circle 314 on Product Info Card

EVI IT SUPERVISOR

The IT SuperVisor is the first unit in the InterActive Technology (IT) line of PC-networked audio controllers from EVI Audio (Buchanan, MI). A single-rack-space unit, the IT SuperVisor monitors amplifier, signal and load status in complex installations, and performs automated and manual test functions. Designed to supervise up to eight dual-channel, IT-compatible amplifiers, the IT SuperVisor may be programmed and monitored from a PC via general-purpose programmable inputs and outputs. Functions include short circuit and clipping protection and automated power-up sequencing.

Circle 315 on Product Info Card

AUDIO-TECHNICA PROPOINT MICS

Audio-Technica (Stow, OH) adds the ProPoint™ line of permanent installation microphones to its Pro Series of mics for contractors. The new line of cardioid condensers includes the PRO 42 miniature boundary mic, the PRO 44 boundary mic, the PRO 45 remote-powered

hanging mic, PRO 47T and PRO47TL thread-mount gooseneck mics, and PRO 49Q and PRO 49QL quick-mount gooseneck mics. All feature self-contained electronics and operate on 9 to 52 VDC.

SHURE BG6.1 MIC

Shure Brothers (Evanston, IL) adds the BG6.1 instrument mic to its BG line of economically priced cardioids ($83.33 to $305.56). The BG6.1 has an integral swivel mount and a frequency response of 80 to 15k Hz; all BG Series mics have neodymium magnets for improved signal-to-noise and output levels. The BG Series includes four dynamic mics and two condenser mics, the BG4.1 (designed for studio recording) and the BG5.1 (optimized for vocals).

Circle 316 on Product Info Card

SPIRIT LX7 MIXER

The LX7 mixing console from Spirit by Soundcraft (Auburn, CA) is a 24/4/2/1 format mixer suitable for both live and recording applications. The first 16 inputs offer direct outs, and all 24 balanced input channels offer four-band EQ with sweepable mids and highpass filters, six aux sends (pre/post switchable in pairs), phantom power, PFL, pan and 100mm faders. Four subgroups can provide direct outs, and the stereo mix bus may be routed to a mono bus output for subwoofer and fill applications. Additional inputs include two effects returns, two stereo inputs with EQ and tape playback (routable directly to the outs for walk-in music). Other features include talkback and 12-segment bar graph metering. Price is $2,499.95.

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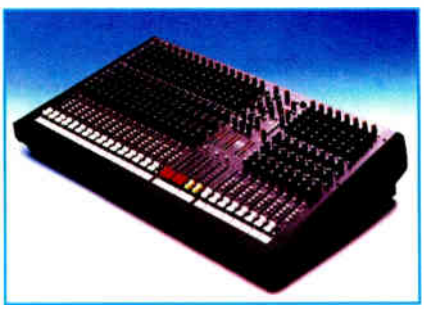

D.A.S. LOUDSPEAKERS

D.A.S. Audio/U.S.A. (distributed by Sennheiser, Old Lyme, CT) introduced two new loudspeaker system lines. The ST-2000 system comprises the ST-215 two-way full range enclosure (with two B-30 15-inch woofers and an ND-8 2-inch throat Neodymium magnet compression driver on a spheroidal molded horn) and the ST-218 subwoofer (with dual 18-inch G-45 woofers in a folded horn). Both ST-200 models are made of Finnish birch plywood, incorporate internal steel bracing and 16 fly points, and are available in paint or carpet finish. The D.A.S. Dynamics Series consists of three models, the DS-15 ($799), DS-12 ($599), and DS-8 ($315), all having injection-molded polypropylene enclosures and integrated handles and pole mounts.

Circle 318 on Product Info Card

PHOTO: PAUL TINGEN

Chateau Recording

RUPERT HINE'S PALATIAL HOME STUDIO

BY PAUL TINGEN

Somewhere deep in the heart of France lies a chateau that doesn't appear to be part of the real world. Architecturally, the building is an elegant, gray-white 19th-century folly, graced with a round tower, ornamental pillars and several balconies. But inside, the 20th century has encroached; this place is the home of one of the world's top music producers, Rupert Hine, who is famous for his productions of Tina Turner, Stevie Nicks, Rush, Saga, Howard Jones and many more, not to mention an influential career as a solo artist. Hine moved from London to the chateau in November 1994 and installed a recording studio in one of the large, light-flooded, ground-floor rooms.

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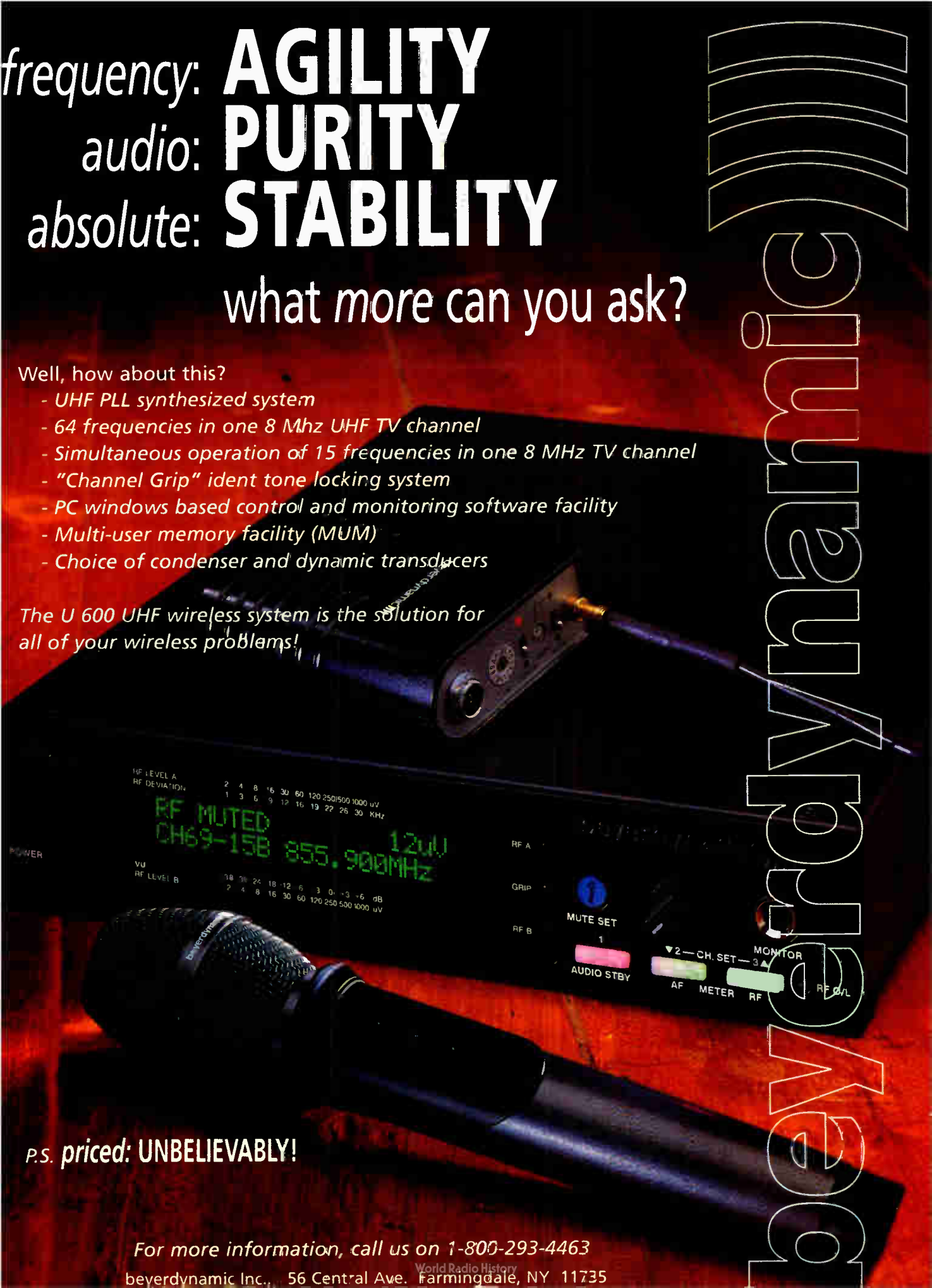

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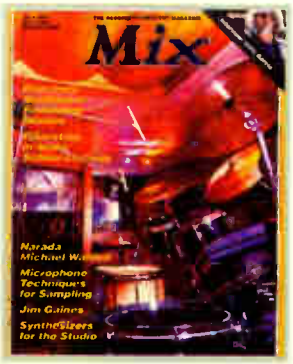

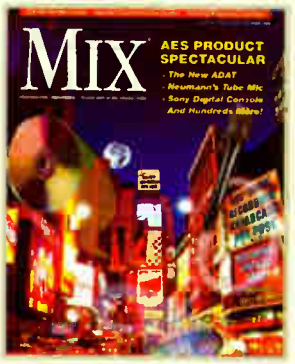

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PHOTO: PAUL TINGEN

Hine at home at the Mackie console

Hine has always liked to record in familiar surroundings. He co-owned (with drummer Trevor Morais) the famous Farmyard studios, located 20 miles west of London, during the '80s, and he now co-owns (again with Morais) a gorgeous residential facility on the southern coast of Spain called El Cortijo. His chateau studio is built around a Mackie 24•8 desk with 24-track X-pander, three Alesis ADAT machines with BRC, and two Macintosh computers. There's outboard gear like the Focusrite Red 7 mic pre and dynamics, Eventide H3000D/SE, Behringer MDX2000 compressor/limiter, Lexicon LXP1 and LXP5, EMS System 2000 vocoder, and sound sources such as the Roland SPV355 pitch to voltage converter, Yamaha Clavinola PF1000 masterkeyboard, Akai S01, Emulator ESi-32, Peavey Bass Spectrum, Pro/cussion, Proteus/1, Proteus/2 and Proteus/3, Emulator II, Korg Wavestation, Korg D50 and Sequential Circuits T8, Farfisa organ and Roland CR78 rhythm box.

Hine has recorded several albums in his chateau, among them Duncan Sheik's debut album, which was, together with the single "Barely Breathing," riding high in the U.S. charts early this year. "The decision to record outside of traditional studios is always taken for vibe reasons—you record where the artist feels most comfortable and is most likely to give good performances," Hine says. "Acoustics are hardly ever a problem: You set up your recording system and then play a few of your favorite CDs to get used to the sound. I use the Tannoys here for monitoring, and we usually have them on quite softly, so the room doesn't really come into play. Steve [Tayler, the engineer with whom Hine works most of the time] does monitor mixes here that we sometimes play to record companies. They always sound so great that we have to be careful that they don't start liking them too much, because I do prefer to mix at a high-end studio, like Metropolis in London."

Human parameters like vibe and performance have always taken center stage in Hine's musical universe. According to Hine, humans oscillate between two different modes: "creative" and "editorial." The creative mode is a stream-of-consciousness outpouring that happens intuitively. The editorial mode engages more intellectual and rational capacities. Hine believes that computer-based music equipment forces creative people too quickly into editorial mode: "It's disturbing to have to switch all the time between these two modes, for they are light years apart. All equipment should be geared toward having to apply the least amount of thought possible. Basically, you just want to press a button that says 'Record,' and go. Instead, most software is trying to impress—'look at everything you can do with this program,' and therefore is very confusing to use."

Despite these misgivings, two huge computer monitors dominate Hine's studio. They are connected to a Mac-

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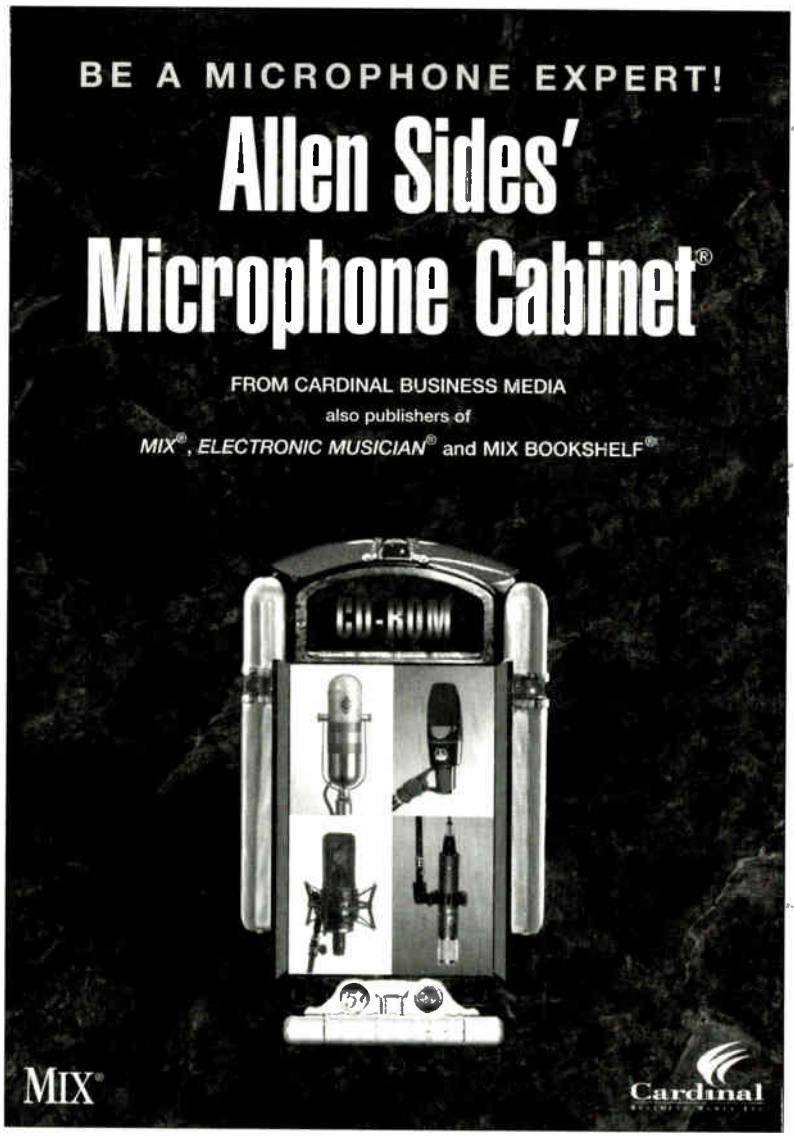

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PHOTO: PAUL TINGEN

The studio also contains a PowerPC 8500, and a Mac Quadra 650 running SampleCell, StudioVision and Notator Logic.

intosh PowerPC 8500, which Hine uses mostly for visual applications, and a Quadra 650, which handles the audio side. The main software apps are SampleCell, StudioVision and Notator Logic. Underneath the monitors is a Digidesign DAC5000 Audio Interface for four tracks of Pro Tools audio, and on top of the Proteus modules Hine has an Opcode Studio 4 synchronization box, which allows him to drive his setup from the Macintosh as well as from the BRC. "I must say that I don't enjoy using all this computer gear," Hine says. "You still have to work within the parameters set by the software programmer. However, there have been a number of improvements during recent years. Many programs have delightful new interfaces, and many now also give so much control that if you're prepared to put the time in to learn them you can discover relatively more idiosyncratic ways of working with it.

"But the most important development for me is the arrival of simple modular programs that allow you to switch between different programs to suit different moods and different ideas. Recycle is a very good example. It chops up audio into small, vertical samples according to the dynamics of the audio and then plays these samples back at any tempo you want. Notator Logic and StudioVision have similar facilities, but they take quite a lot of experimenting and messing around. But Recycle does only this, and does it in an extremely easy and friendly way."

Hine stresses, however, that he's "drifted away from the whole MIDI and computer area during the last years. In the mid and late '80s, I used the Linn 9000 and the MPC60 as complete arrangement tools," he says, "playing and programming many instruments myself, and then replacing certain sections with 'real' instruments. It was a whole phase of my musical life during which the sequencer did the lion's share of the work. By the beginning of the '90s, I got fed up with that. It was too much of a good thing. And so I started to move away from sequencers and MIDI and ended up doing a number of mainly acoustic records, like with Les Negresses Vertes's *Zig Zague* [1994] and Ezio's *Black Boots on Latin Feet* [1995]. Duncan Sheik's album also used very little MIDI. It's mainly just him singing and playing the acoustic guitar, to which we added a few overdubs."

Hine recorded Sheik in the huge live room adjacent to his studio room. Vocals were captured with a hired Neumann U87, acoustic guitar with a pair of Hine's favorite Octava condenser mics. The Octavas are part of the chateau mic collection, which also contains the Octava dynamic, two AKG C3000s, two AKG C-414s, four Shure SM57s, four SM58s, a Shure 520D bullet and an AKG 451. Sheik was recorded straight to Alesis ADAT, guided only by a click track. After this, Hine added live drums to the acoustic guitar and vocals. "It's the only time in my life that I ever tried that," he says. "We did it to

be able to experiment with grooves later on, sample the drums and mess around with them. But it sounded great with just drums/guitar/vocals, and two-thirds of the album was done like that in a few days. We later added the various overdubs, of which the live strings and piano were recorded at Metropolis studios in London.

"For creative mode," Hine says, "I always concentrate on recording things directly to the ADAT. I'll have the sequencer running simultaneously when I record—though not at playback. I don't like the idea of running virtual tracks. The computer functions purely as a data-storage machine. The MIDI data enables me to change the sound of a part later on if I want to do so. And when I'm improvising on keyboards, I'll listen back to the ADAT, and if I can't work out how I played the good parts, I have my sequencer as a music-notational secretary: 'Miss Marple, what did I play in bar 96? Exact chord and inversion please...' Finally, I only have four tracks of Pro Tools, because the only thing I'll do on it is make vocal comps. I normally just record three vocal takes at a time, mess with them in Pro Tools, and then whack them back again onto the ADAT. So you see, I have massive computer power here, capable of doing extraordinary things, but for the last albums I've only used it in very minimal ways."

The decision to record outside of traditional studios is always taken for vibe reasons.

—*Rupert Hine*

Hine is pleased with his ADAT/Mackie setup, which he calls "a total Ford Fiesta buy. The Mackie does the job in a brilliant way; it gets you from A to B, and it sounds great. The mic preamps are fine. I record many things via the Mackie directly onto the ADATs, though I'll use the Focusrite Red for vocals and acoustic guitars. I have a Mackie 24-track X-pander board, because I often use my setup as an old-fashioned split console, where the right half is used for monitoring, and the left half for recording. At other times, I'll have all the instruments on one side and effects and treatments on the other side. I like the fact that you can reconfigure the desk very easily. And I maintain that consoles like this are more practical for a greater variety of applications than digital assignable ones."

However, unlike many engineers and producers who have gone the full-blown retro route and won't touch digital with a barge pole, Hine's old-fashionedness only extends to his attitude toward interfaces between man and machine, not toward the actual sonic quality of modern studio gear. That's why he owns so much American gear: "American pro audio companies tend to know each other and talk to each other and make sure their products work together. And their interfaces are set up in a logical, easy to understand way." Hine is happy with the sound quality of his "entirely reliable" ADATs and doesn't have much time for the "digital-sucks-analog-is-far-superior" opinions of many of his colleagues. "I've done countless A/B experiments with analog and digital," he says, "and when I A/B a digital sound with a live sound, there's no change. With analog there is a change. You may have warmer bottom end and a bigger bass, and these may be changes that you like. Fair enough. But if you want an accurate recording of something, then digital is the only thing that will do it.

"But in the end the differences aren't that great, or that relevant," he continues. "I'm sure that I'd get marginally better results if I'd use a Apogee A/D converters instead of the ADAT ones, but I'm not concerned with that kind of minute detail. I'm a songwriter and musician who wants to get the artists I produce to sound fantastic, and whether they sound fantastic or not has more to do with the state of mind he or she is in and how we treat the song than with the last microscopic bits of hi-fi potential. There are certain producers who are really into that, and I'm sure they get Grammys for what they do. But many Grammy Award-winning albums sound heartless, because going for a good performance and trying to achieve immaculately recorded, super hi-fi sound quality are incompatible things. The magic is in the performance and the song." ■

Paul Tingen is a writer based in the UK.

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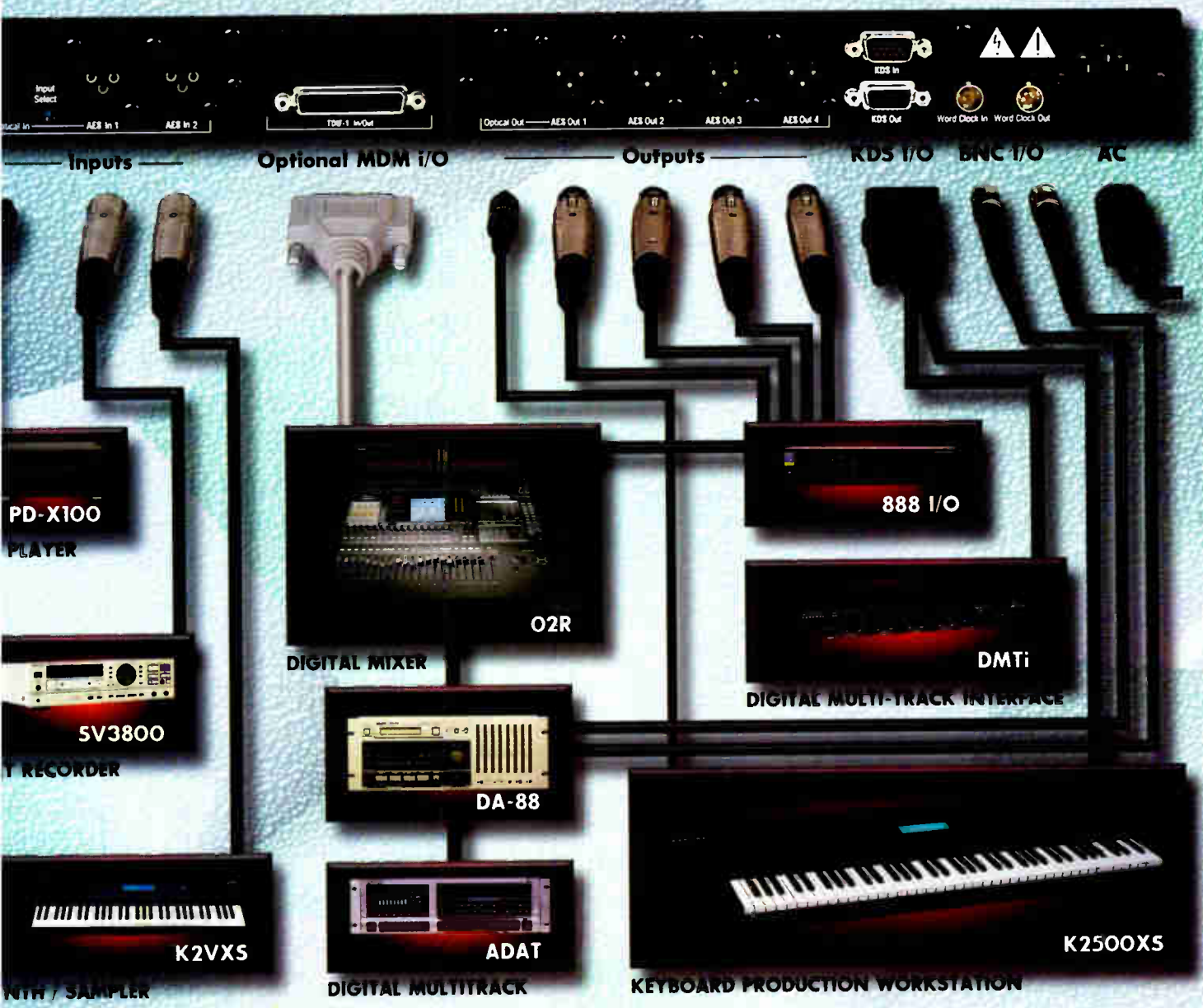

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JEFF LORBER

OLD WAYS, NEW WAYS

by Robin Tolleson

Jeff Lorber's *State Of Grace* is a modern instrumental funk album that uses loops and computer but feels live all the way through. And it shows a heightened musical maturity and studio savvy from the days when Lorber bolted out of Portland, Ore., with the Jeff Lorber Fusion. "I used sequencing, used my computer as a sketch pad to figure up the form and tempo, and laid it down that way," Lorber says, "then I replaced a lot of it. In the first incarnation there's kick, snare, hi-hat, various percussion instruments, plus loops. Then when I got J.R. [drummer John Robinson], I bailed on everything but the loop. And the same thing with bass. I had Nate Phillips replace all the synth bass lines except for two songs where I had an acoustic bass patch that I liked. I actually hired an acoustic bass player to come in and used a little bit of what he played on 'Katherine.' So the basic theory is to have people come in one at a time and just focus on getting a great sound and a great performance."

The attention to sounds is apparent—the fat and bright Fender Rhodes, the true Hammond B-3, the flute and bass clarinet, the acoustic guitar, to name a few. "On the last record I didn't quite have all the vintage keyboards collected," Lorber says. "I tend to go with spontaneity, and if I get a good performance, even if it's not on the ideal keyboard, I'll keep it if it has a spirit I like. But this time I actually had a couple Rhodeses and a Wurlitzer and a Clav here to use. It made a difference in terms of achieving the sounds that I really like."

When it comes to keyboards, Lorber is clearly in the retro camp. "Every few years, there's been a revolution in keyboards—the DX-7, the M-1, the D-50, and then all this new stuff. And it just kind of gets boring with the instruments we have now. The personality seems to be gone. You go back and check out the

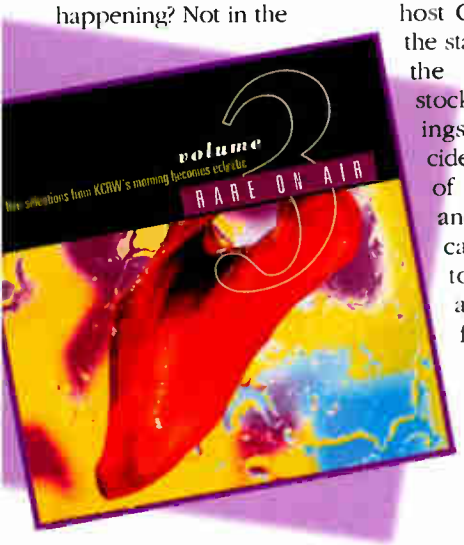
—CONTINUED ON PAGE 178

KCRW'S "RARE ON AIR"

LIVE FOR THE CAUSE

by Adam Beyda

Where has some of L.A.'s most consistently intriguing and vital live music been happening? Not in the newest club, but in the basement studio at public radio station KCRW in Santa Monica. The station regularly features live performances as part of its weekday music program, *Morning Becomes Eclectic*, and over the years those within broadcast radius have been treated to a variety of memorable sessions. When the program's current host Chris Douridas joined the staff in 1990, he realized the station was simply stockpiling 2-track recordings of the shows. He decided to try to make some of these always unique and often amazing musical moments available to a wider audience, and the result of his efforts is an excellent series of CDs titled *Rare On Air*. Conceived as a benefit for KCRW, these compilations of performances from *Morning Becomes Eclectic* have lived up to the show's name: The first two CDs in the series featured a wide range of artists from Beck, Natalie Merchant and Lucinda Williams to The Cranberries, Cibo Matto, Joni Mitchell and Philip Glass.



Chris Douridas (L) and Bob Carlson in the KCRW studios

The recently released Volume 3, on Mammoth Records, is perhaps the best of the bunch to date. It extends and refines the concept, presenting an interesting mix of voices in unusual and intimate settings. Along-

—CONTINUED ON PAGE 184

HERE COME THE EGG-MEN

by Bryan Reesman

The era of electronic dance music is upon us, and for many that might be not such an exciting proposition. At its worst, modern techno is plagued by extreme repetition, bottom-heavy bass and rigid structures. This unpleasant aesthetic will no doubt scare off many music fans, and this is where a band like The Egg come in. Hailing from Oxford, England, this energetic quartet mixes '70s funk and disco with '80s house music and a '90s approach to hybridization, allowing for a simultaneously modern-retro sound, but one with live instrumentation.

The Egg start with the standard rock drums-bass-guitar format, add keyboards and approach everything from a jam-oriented perspective, making their sound fresh and invigorating. By implementing some inventive ideas into a traditional pop format, they offer organic dance sounds that effectively use technology without becoming a slave to it. The final product is something that even people who don't like dance music should be able to groove to: Mark Revell's diverse six-string work covers everything from catchy funk licks to bubbling psychedelic sounds; Dave Gaydon provides some truly dexterous bass work; Ned Scott agilely plays live "house" piano and all manner of odd effects; and drummer Maff Scott keeps things kicking with some

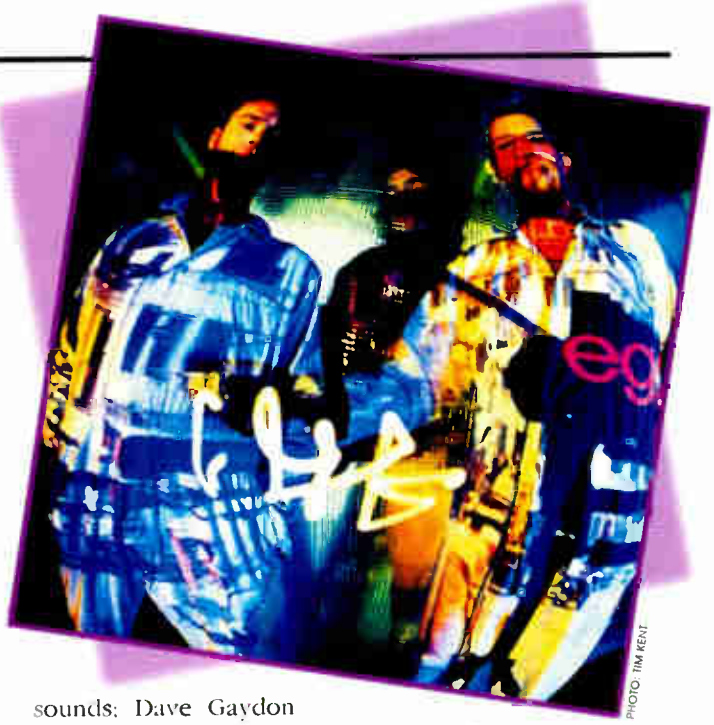


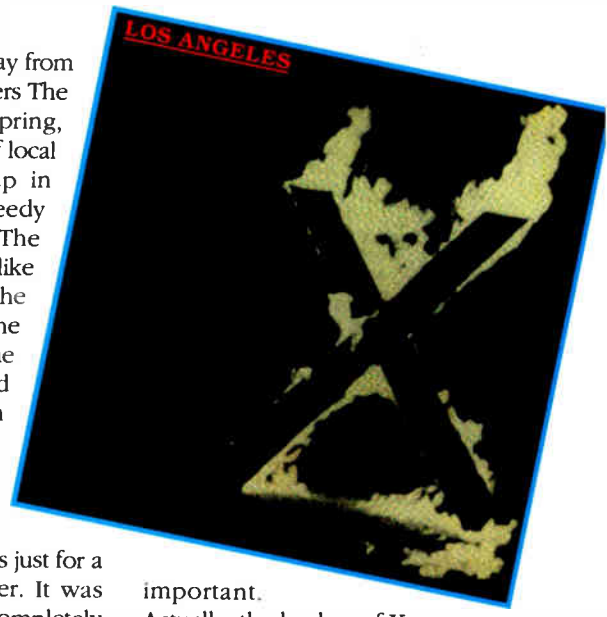
PHOTO: TIM KENT

—CONTINUED ON PAGE 186

"LOS ANGELES" BY X

by Blair Jackson

If you were to use the *Billboard* album sales chart as your only guide, you might believe that the music scene in Los Angeles in the late '70s was dominated by The Eagles, Fleetwood Mac, Jackson Browne, Warren Zevon and Linda Ronstadt. Great performers all, but not exactly on the cutting edge of music. And certainly not part of Los Angeles' club scene, which started to take some interesting turns 'round about August '76. That was the month that the New York punk band The Ramones played at the Roxy on the Sunset Strip and, some feel, ignited a punk scene that had been quietly simmering for a while. (The Ramones' visit to England the same year had been similarly influential. There was something about The Ramones' look and attitude, and the "blitzkrieg bop" of those three or four chords exploding out of their amps at skull-splitting volume, that was liberating for thousands and thousands of people.) The Ramones were proof that *anyone* could put together a band and get their rocks off playing loud and fast; in that way, they had an impact that was similar to The Beatles, though obviously skewed away from the mainstream. British punkers The Damned hit L.A. the next spring, and by that time, a number of local punk outfits had sprung up in garages, warehouses and seedy hotel rooms around town. The first wave of L.A. punk bands like The Weirdos, The Zeros, The Dils, The Screamers and The Germs found a friendly home in a Hollywood club called The Masque, which Brendan Mullen opened in July 1977. Over time, more venues catering to punk bands and the quickly expanding punk audience appeared, sometimes just for a gig or two, sometimes longer. It was tight-knit scene that existed completely outside of the commercial record business. Indeed, in the punk world, local labels like Dangerhouse, What? and Bomp had much more street cred than Warner Bros., Columbia, Elektra/Asylum and other majors.



L to R: Exene, D.J. Bonebrake and John Doe

The great L.A. band X came up in the second wave of home-grown punk groups—temporally, just a few months down the line from the "pioneers"—during a time when, as the momentum of the punk movement grew and spread, things were changing so fast that each month had its own character and events that made it unique and important.

Actually, the leaders of X, John Doe and Exene Cervenka, weren't Angelinos. Doe had bounced around the mid-South and Midwest before landing in Santa Monica in 1976; Exene had grown up in Florida mainly. The two met and fell in love at the Venice Poetry Workshop, a bohemian enclave that overlapped the nascent punk scene, and before too long, they decided to form a group of their own based around poetry and music they would write together. Doe already had experience playing in bands here and there, and Exene was eager, if unseasoned (never a detriment in the punk world). It was through an ad in a local free paper called *The Recycler* that the duo found their guitarist, a guy named Billy Zoom, who had been playing rockabilly around L.A. for nearly a decade, including stints with Gene Vincent and local legend Ray Campi. Drummer Don Bonebrake was the only native of the bunch, a North Hollywood kid swept up in the same surge of energy as everyone else out there starting bands. The name of the group was Exene's idea:

"'X' is good because it means so many things," she explained in 1980. "In the dictionary it means the variable, unknown quantity, Christ, crossbones, universal taboo, marks the spot, even the airport tags—LAX."

From the outset it was clear that X was not just another disaffected three-chord thrash band. One thing that immediately set them apart from their peers was John Doe and Exene's unusual harmony blend—at once daring, angular and sensual; sort of a punk version of Grace Slick and Marty Balin in the Jefferson Airplane. Then there was Billy Zoom, standing nearly still onstage, his legs spread wide, a million-dollar smile on his face, ripping through distorted and impossibly fast rockabilly and Chuck Berry-style licks on his silver Gretsch, amp turned up so high that it *roared*. Doe was an excellent bass player in a scene filled with thudding, rudimentary bassists, and Don Bonebrake was up there with Blondie's Clement Burke as one of the steadiest and most versatile skinsmen in the punk underground. Their songs were gritty, intense, poetic pictures of L.A.'s dark, poor underbelly—a million miles from the decadent heaven/hell of "Hotel California" or the glistening wave paintings of the Beach Boys and various other SoCal faves.

It didn't take long for X to establish itself as one of the top bands in the L.A. punk scene. From their early shows at the Masque in 1978 until their first album came out in 1980, the group built a huge following around town. They put out one very well-received single on Dangerhouse —"We're Desperate"/"Adult Books," recorded at Kitchen Sync Studios. But despite their reputation around town (or maybe because of it—who knows?) none of the major labels offered them a deal; too rough and raw perhaps, too *something*.

"The most important element of that period was the connection the bands had to the audience," John Doe comments. "There was very little separation. They were our friends mostly. And the sum was greater than any one of the parts. There wasn't any one band that defined the Los Angeles music scene. It was as much about The Go-Gos as it was about X. Fear was another contemporary that had a big following. The way I see Los Angeles, the musical mix was very eclectic. And there was a lot of collaboration and a real sense of community. The scene couldn't have survived the way it did without everyone working together."

Sometime in the fall of 1979, Ray Manzarek, former keyboardist for The Doors (L.A.'s *original* punk poetry band, '60s-style) happened upon X at the Whisky A Go Go. "I had gone to see Levi & The Rockcats, a rockabilly group," he says. "Rockabilly was just sort of breaking at that time in Los Angeles; it was kind of a hot thing. I had grown up with rockabilly myself, so I wanted to see a contemporary version of it. And the opening act happened to be X. I had read some lyrics by X in an article by Chris Morris in the *L.A. Reader* called 'Sounds Like Murder' and was very impressed—they ran some of 'Johnny Hit and Run Pauline.' I thought, 'This is poetry. This is punk rock, but it's poetry, too.' I was excited about seeing them live, too. So my wife, Dorothy, and I went to the club early and got a little table in the back, and on comes X, and they absolutely *killed* me, man, just floored me. They were so good I didn't even care about Levi & The Rockcats.

"I mean, there was Exene and John doing what I called their 'Chinese harmonies,' and Billy Zoom with the grin on his face and that silver jacket and the silver guitar and that stance playing the loudest rock 'n' roll guitar I'd ever heard, *effortlessly*. How could he get all that volume and that precision just standing there like that? And Don

Bonebrake flailing away, whipping and smashing the drums. His name seemed completely appropriate because it seemed like he was breaking the bones of the drums. He had a big marching snare that he played, and it was like rifle cracks every time he hit it. So I was completely blown away. We were about halfway through the set and I'm just going with the rhythm and Dorothy said to me, 'Ray, listen to that song—do you know that song?' I said, 'I don't know any of these songs.' She said, 'No, no, listen carefully.' So it was like, 'Wait a minute! I know that song!' It was [The Doors'] 'Soul Kitchen' at a thousand miles an hour. It was great.

"As soon as X's set was over, I went upstairs to talk to them and said, 'Look, if you guys need a producer...I don't know if you have a deal or what.' They said, 'Ray, we don't have anything.' I said, 'Let me be your producer. I used to play keyboards with The Doors.'" Now, one might think that a young, up-and-coming punk band in that era wouldn't want to hitch its wagon, so to speak, to someone who was so identified with rock's past, but according to John Doe, "Both Exene and I were big Doors fans, and we were actually quite taken with the fact that the illustrious Ray Manzarek wanted to work with us. [In punk] there was a rejection of the people who had ruined rock 'n' roll, but The Doors and Jimi Hendrix and Cream and all the '60s psychedelic bands, if you want to call them that, didn't fit in that category, at least in my view."

"They certainly didn't want to be considered 'playthings of a rich rock star,'" Manzarek adds dryly. "But then they saw the car I was driving—a yellow four-door Toyota with 150,000 miles on it—and I guess they figured I was okay.

"So after I hooked up with them I started going to rehearsals and helping them hone and polish their tunes a little bit," Manzarek continues, "and eventually they were signed by Slash Records, the only record company that would have them. It had been the same way with The Doors—nobody in L.A. would sign us. We had to be signed by a small folk label out of New York City [Elektra]. So Bob Biggs [head of Slash] then said, 'Okay, guys, can you make a record for me for $10,000?' And that's what we did."

In January 1980, the band and Manzarek went into Golden Sound to cut the first X album, called *Los Angeles* after one of John and Exene's tunes. The building where Golden Sound was located had a long, colorful history. Originally the studio was called Radio Recorders and "it was the scene of a lot of very cool recording, especially during World War II," says engineer Rick Perrotta. "When we were building Golden Sound, I had found a room in the back with all these glass lacquer masters of radio shows with people like Frank Sinatra and Elvis Presley—incredible stuff." Coincidentally, Radio Recorders is also the studio where The Doors original acetate demo was pressed back in 1966. Perrotta built Golden Sound in late '78 and early '79, and it had been open about six months when X came in to make *Los Angeles*.

Perrotta was a friend of Billy Zoom's from his pre-X days and knew the band through his association with the guitarist. "Being a straight-laced kid from the East Coast, I always felt a little uncomfortable around them because they were exploding with punk personality, and I felt like they didn't like me," Perrotta says. "But I guess they really did think I was okay because when they got a deal with Bob Biggs, I said, 'Please, please let me do it!' So I made a deal with him. I said, 'I'll engineer the album for free. I'll make sure it doesn't go over $10,000.' I was willing to do just about anything to do that album. I loved X. They were so great."

The album was cut over the course of about two weeks, with Perrotta engineering, assisted by Golden Sound's Norman Graichen. Since all of the songs on the album were tunes the group had already been playing onstage for a while, the approach in the studio was mainly to capture X's live energy. So all the basics were cut live, and then vocals, some of Billy Zoom's solos and Manzarek's keyboard parts were overdubbed later. One song, the soaring "The World's a Mess; It's in My Kiss," was recorded completely live. "They didn't want a lot of processing," Perrotta says, "so I mixed with minimal effects. We used very slight EMT 140 plate and a little Lexicon 224, and that was about it."

"We knew what we wanted it to sound like before we went in," Doe says. "We wanted it to sound like *us*. We had stumbled onto something that was a synthesis and relatively unique, so Ray didn't have to redefine the band, because it was already well-defined. Ray's job was to support our eccentricities and not get in the way—make it the best performance of what we did, because what we did was pretty fully realized."

Golden Sound's control room was equipped with a Harrison 3232 console, UREI time-aligned monitors and JBL 4311s, and a variety of recorders, including a 3M 79 24-track and Studer A80 and A700. Perrotta says he set up the band in the studio in the same configuration they used onstage. To capture Bonebrake's drums, Perotta used an AKG D-12 on the kick, Shure SM57s on the top and bottom of the snare, Sennheiser 421s on the tom-toms, AKG C-60s on the hi-hats, and a pair of AKG 414s as overheads. Zoom's Fender Concert guitar amps were miked with a 414 and a 57; bass was a combination of direct and a U47 FET on the amp "though I never told John we were taking a direct, because he would have objected," Perotta says. Manzarek's B-3 organ took three inputs: a 414 on the bottom of the Leslie cabinet, and two C-60s on the top for the stereo effect on the top rotor. Vocals were mainly Neumann U87 (Doe) and 414 (Exene), with an EV RE-20 also getting some use, "because it gave us that dark, mysterious sound they were trying to capture on the album," Perrotta says.

"Exene's voice at that time was not the artistic tool it later became," Perrotta notes. "When we'd solo up her tracks, we'd look at each other and cringe at how rough they sounded, but when you added John's track in there it became magic. I realize that's what their magic was—the synergy of all the elements."

There was also magic in the songwriting, itself a synergy. Doe and Exene are co-credited for all the lyrics on the album, and Doe says that "it was always very collaborative in spirit." Perrotta adds, "It seemed as though mostly John would pen the material, and then Exene would add to it in a very weird and unique way, and then when you heard John and Exene working on it together, like a couple of artful poets, the song would materialize. And then Billy Zoom would just hammer it and it would take on this other X characteristic. It would go from kind of folk poetry-music to this intense punk music that was also full of art. It was a wonderful thing to watch."

In the case of this month's Classic Track, Doe says, "I had more to do with writing 'Los Angeles' than Exene did, but it was about her closest, dearest friend—Faye Hart, who was one of the style-makers on the scene. She had better sense not to be in a band. She was one of the people who defined punk rock in Los Angeles. She married Steve Nieve [Elvis Costello's key-

boardist], and they had a couple of kids together; they're separated now."

The song blazes by in a scant 2:25, but it's packed—with droning harmonies, machine gun guitar riffs and fast but fluid drumbeats. Like the music, the lyrics are in-your-face frank:

She had to leave Los Angeles
All her toys wore out in black
and her boys had too
She had started to hate
every nigger and Jew
every Mexican that gave her a
lotta shit
Every homosexual and the idle rich
She had to get out, get out, get out...

Not surprisingly, the song created quite a stir. "A lot of people who weren't on the inside thought it was scandalous," Doe says. "We were well aware of the inflammatory aspect to it, which I enjoyed. If there was any inspiration for the lyrics of that song it was probably [poet] Charles Bukowski—the simplicity. I went to school for writing, so I know writing, but I tried not to let that get in the way. The people on the inside knew what it was about. A couple of years after that, some of the audience didn't really understand it; they took it the wrong way in support of their own prejudices. But obviously that's not what we were after."

The whole album is less than 30 minutes long, but it's a vivid and unforgettable journey every second of the way—easily one of the finest documents of the punk era. The record sold more than 60,000 copies when it came out, small by major label standards, but a huge number for an independent punk/new wave release. X became the toast of the L.A. underground, but also began to draw a sizable disaffected suburban audience to their shows, as well. They sold out the Whisky and other clubs around town for the next few years, during which they produced several other excellent albums, including *Wild Gift*, which even made the national charts in 1981, *Under the Big Black Sun* ('82) and *More Fun in the New World* ('83). Billy Zoom left the band in 1985 (today he repairs amplifiers for a living in Orange County), and for my money, the group lost some of its bite when he departed. Nonetheless, X continued making records and touring until 1988, always attracting a small but devoted following, but never quite breaking through to the Big Time that was always predicted for them. They reformed in 1993, put out a fine album called *Hey Zeus*, then an acoustic live album, but both were commercial disappointments, and the group has now disbanded for good. John Doe has made two solo albums and is preparing to make a third. He's also helping put together an X anthology CD which will probably include half unreleased live, studio and rehearsal material. Exene has made both spoken-word and music records away from X, and is currently fronting a group called Auntie Christ, which reportedly has more of the original X punk spirit than the later incarnations of the band.

Unfortunately, X is a band that never quite escaped the shadow of their early triumphs; a shame because their songwriting was brilliant up until the end. But there is unquestionably something special about that first album, which came busting out of the Hollywood night what now seems like an eternity ago.

"I'm going to say that it's the best punk rock record ever, bar none," says Ray Manzarek. "That includes neo-punk of today or anything coming out of England. It beats The Clash hands down, and the groups out of New York City, as stylish and fashionable as they were, couldn't hold a candle to X's musicianship and their incredible sense of poetry. And I'm not trying to complement myself here; I'm complementing *them*. What a sensational band that was, and what a great time in Los Angeles. There was a five-year period—1977 until about 1982—when L.A. was just amazing. And X was the most amazing band in L.A." ■

—FROM PAGE 172, JEFF LORBER

Rhodes and Wurlitzer, and you realize this really has warmth and personality and character. Every time I play a key it sounds a little bit different, depending on how hard I hit it, and there's a sense of depth with a real B-3 using microphones compared to a sample. So that's what I rediscovered."

The organ sound on "Cat Paws," for example, is real Hammond. "Pretty much all the B-3 on the record is real," Lorber says. "I have a small recording room next to my studio, and we crammed in a Leslie and threw a couple mics on the horn and one on the bass, mixed them together and put it down in stereo." "Pacific Coast Highway" was recorded using Herb Alpert's Fender Rhodes, and the acoustic piano on "Wide Open Spaces" is an old Steinway

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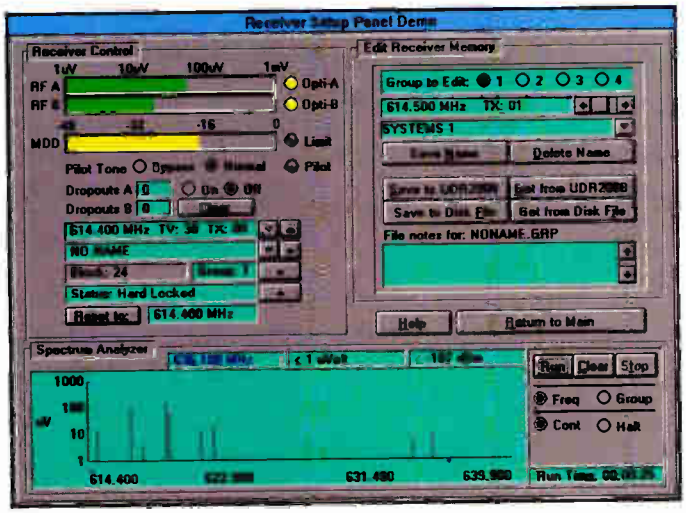

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that's been in Lorber's family for years. "To me the real key to getting a great piano sound is the C-12A microphone," Lorber notes. "It has a wonderful sound for miking pianos. We put it, in stereo, pretty close to the hammers so you get the attack. The piano's in my living room, and I have tielines out to the studio. It's actually a great live room, just by chance, with the ambience of a high-ceilinged room."

There's much more to the album than just nice keyboard textures, however. The background of "The Island of Temples" is spiced with a wash of marimba and gamelan. "My neighbor lived on the island of Java for quite a few years," Lorber says, "and he happened to have a beautiful gamelan from Indonesia, which I grabbed. It's a very out-of-tune instrument, a crazy sound with the most strange overtone series. I actually had to VSO the tape to even get it remotely close. This gamelan has metal bowls that you hit with a wooden beater, and it sticks out in a couple sections because it's such an unusual sound."

Lorber was also pleased with the efforts of his other musicians to be tonally interesting. "Gary [Meek] called me to say he had just bought a bass clarinet, and I asked him to bring it over to see what it sounded like. In the kind of music I do—the NAC radio format where I get most of my airplay—there are so many saxophone players. So even though Gary is a great sax player, he was featured more as a flautist. I just look for different timbres so that when my record comes on it'll sound a little different."

State Of Grace was co-produced by Mickey Petralia, who has worked with artists such as Beck, Moby and Natalie Merchant. "It's fun to have somebody to bounce ideas off of," Lorber says, "and his area of expertise is more acid jazz, alternative rock, techno and trip hop kinds of things. And I used a different engineer than usual, a guy named Eric Sarafin who mixed it a little more dry and in-your-face. The theory was to use more organic sounds to make it more immediate, more raw and street and a little less slick."

Lorber has been working out of his JHL Studio for about 12 years. "It used to be just a JH-24 and a Soundcraft 2400 in a bedroom with no soundproofing, and my neighbors were getting pretty pissed," he laughs. "The whole thing started when I went down to Westlake and was thinking about buying a Publison, and they were selling a JH-24 for

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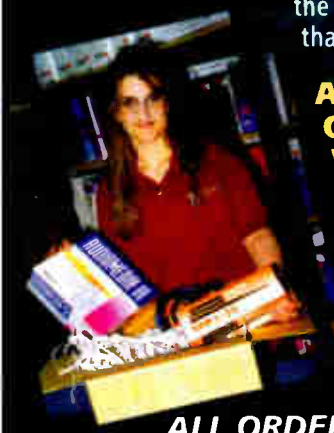

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$18,000, with just a few hours on it. I did a little math in my head and realized I couldn't afford not to buy it, considering all the money I was spending on studio time on different projects.

"The first project I worked on in the studio was the group Nu Shooz from Portland, and their record went Gold. So that was a pretty nice initiation. Now I have an SSL 56-input E Series board with a G computer, and a Studer, and still one JH-24. So I have two analog 24-tracks. I have a lot of keyboards, many of which I don't use as much as I used to because I'm relying more on the live stuff. But I still have a few choice pieces of MIDI gear that do well for me. A lot of times we rent outboard gear when we mix, but I have enough to get by—an API preamp, a Brent Averill Neve equalizer, a Yamaha REV1 and a bunch of Yamaha delays, a PCM 70, some dbx compressors and Drawmer gates. And lately I've been taking the more purist vibe, which I never really believed in. I'm printing more stuff going direct through the API preamp and the Summit compressor and the Neve, rather than going through the board—going straight to tape through that stuff. I think it sounds a little better and has more air. An engineer friend came in recently and turned me on to using the line inputs for everything rather than the transformers, and that alone seems to really make a difference, to open things up.

"I remodeled my house and have an acoustically designed control room built on concrete, with triple-wall construction so I can turn it up loud," he continues. "I have some really great speakers made by George Augspurger Design. I used to work at Larrabee a lot, and I really like the equipment and overall sound and look of that place. Not just the sound, but the cosmetics. So even though it's a modest home studio I tried to cop that vibe and have the same speakers, chairs and other things."

The recording room at JHL isn't big enough for much more than John Robinson's drum set—about 8x12 feet, according to Lorber. "It's pretty small, but it works great," he says. "I record in my living room too, which is more open, but that room works great for drums. It's a tight kick drum, sort of that '70s sound like Hollywood Studios or Wally Heider with the drums in a small, dead room. It gets a real funky sound."

Lorber began learning his studio and producing skills while doing his own

demos and working with producer Marlon McClain in Portland. "Then I got heavily into the session scene in L.A. in the '80s and did remixes and work on tracks that were produced by people like Teddy Riley, Jam and Lewis, and L.A. and Babyface," he says. "That was a good education. I got a chance to really listen to those tracks and analyze how they were put together. Sometimes they would just send the tapes to my house, and I'd have carte blanche to do my thing and add overdubs, and it was a nice opportunity to really examine what was on tape."

Lorber co-produced the most recent record by trumpeter Herb Alpert, another player who has made instrumental music for mass appeal. "That was interesting because he has so much experience, not only in his own career, but also as the president of A&M. He has a wonderful overview for what's important, and I learned a lot from working with him. He forced me to take a different approach to arranging, to strip things down, make it more sparse and not add anything unless it was really necessary. In fact, *State Of Grace* was the next record I made after working with Herb, and I put some of those lessons into effect on that record.

"A record should be like a chess game," Lorber says. "You don't waste a move. Everything you do should be significant, should really add or do something important. I had gotten into certain cliches, and working with Herb made me re-evaluate that and try to keep the overall goal in mind, and see how each piece would fit into that rather than automatically throwing on certain parts." ■

—FROM PAGE 173, KCRW

side Patti Smith darkly crooning her great "Dancing Barefoot" to the raw accompaniment of a lone guitar, you can hear Jakob Dylan belting out the strangely affecting "Angel on My Bike" with his band The Wallflowers. Other highlights include songs by Guided By Voices, Luna, Ben Folds Five, Tindersticks, James Taylor, Fiona Apple, Me'Shell Ndegeocello and Cowboy Junkies.

Despite the disparate array of artists, the CD maintains a distinct, coherent identity, thanks to careful sequencing and to the immediate character of the sound and songs. The performances tend toward the quiet, yet are often highly emotional and loaded with presence. All were cut live, in one room, direct to Panasonic SV-3700 DAT. "The artists were sitting right next to each other," Douridas explains, "they were looking at each other. They weren't multitracking. There's a lot of connection and intimacy to these performances, so that helps create the personal thread that goes through the record."

Douridas produced the CD along with KCRW production director Bob Carlson, who also engineered the majority of the tracks. All the show's sessions take place in the wedge-shaped studio, which is 20x23 feet at its widest point and 20x18 at its narrowest. The ceiling slopes from ten down to seven feet high. Douridas conducts interviews and operates the broadcast console from one adjacent control room, while Carlson is stationed in another mixing at a recently acquired Amek Big desk. Through a combination of long-range planning and last-minute circumstance, Douridas, who is also KCRW's music director, will schedule sessions with bands several times a week. Air time for the live interviews and performances is 11:15, and Carlson or the station's other engineers (Scott Fritz and Theo Mondle also worked on sessions for the CD) usually have about an hour-and-a-half to set up with the band.

"Once they get here," Carlson says, "we just throw it together, run through a few songs and try to get as much of a mix going as we can. When people hear it on the air they might be hearing the live mixes right next to an album track, and their ear is really tuned to quality more than if they were at a club. So the challenge is much greater to have something that compares favorably to a CD. But we have to get it going as quickly as we can, so basically we want to make it as straightforward as possible, with few effects. If you're trying to do something really weird with a mix it's going to end up being a problem more than anything else, because we don't have a lot of time for experimentation." (On the CDs, the mixes are mostly heard as they were broadcast, though with the added benefit of mastering by recently retired great Wally Traugott at Capitol.)

"We know the room really well," Carlson adds. "We have our drum corner—because the ceiling is sloped a certain way, there's one place where the drums get diffused a little bit more. We generally put the vocalist in the exact opposite corner and also where

they can actually see Chris through the glass, because he's interviewing them. The only thing we do for isolation is we have these homemade baffles that we occasionally put around the drummer to cut down on the cymbals getting everywhere. Sometimes we'll put them around the vocalist. We have a lot of good mics—U87s, 414s and KM84s—but it's sort of a cross between miking for a club and miking for a studio. We're looking for that real high quality, but you can't really use a U87 on a vocalist if a whole band's playing in the room with them, because everything would just bleed into the mic. For that we have to use a 58 or something for vocals."

Carlson points to four-piece guitar band Luna (who contribute one of the CDs best-sounding tracks) as an example of the sort of musicians who make his job easier. "They understand dynamics," he says. "They know that when they're in a little room, and everything's being close-miked, they don't have to blast away on their instruments; they can tone down and still sound good. Softer stuff tends to sound better here, because it's a warm-sounding room. When bands start really thrashing loudly, everything starts bleeding into everything, and it's hard to control. That's why the albums tend to be on the soft side, because those were the songs that sounded best."

For compression, Carlson has two LA-4s, an 1176, some dbx 903s, and a Valley 610 stereo compression unit. Effects include a Yamaha SPX90 and SPX1000 and a newly acquired PCM 90. He monitors with JBL 4408s powered by Hafler amps. "Basically that's all we use, in addition to the onboard software dynamics on the BIG. We don't use any preamps other than the ones on the board. But most of the songs on the new CD were recorded with our old board, which was a Neotek Series 1. It was a pretty small, old board, and it was falling apart. The main reason we got the [28-in] Amek was we only had 16 channels on the old board, and we were constantly hitting the ceiling."

If it sounds like KCRW is operating on a pretty tight budget, it's because they are. Working for public radio means that Carlson might have to give the band directions for parking their bus while trying to get the headphone mix right. But, to date, Volumes 1 and 2 of *Rare On Air* have raised a quarter of a million dollars. "One of the most important elements of this project is that it's a significant alternative source

of funding for this station," Douridas says, "and we hope it will be an example to other public radio stations and public broadcasting in general." As the series has grown in profile, he adds, "We have the albums more in mind now as we invite the guests down, we're cognizant of building the next record. But what's different about KCRW is we don't ask them to play the single; they do that somewhere else, then come here and play something they're really excited about."

Douridas, who also holds an A&R position with Dreamworks, often solicits unusual material from the artists or suggests setups. "Before they come in," he says, "we'll have conversations about what kind of performance they'll be doing. Sometimes we might encourage an alternative band to bring acoustic instruments, sometimes the full electric band. Sometimes that decision is ours, sometimes it's the band's, it's a case-by-case basis. Once they get in the studio and they're setting up for sound check, I'll have a conversation with them about which songs we'd like to get. Again, we work that out between the band and myself. In the case of the Cowboy Junkies I asked them to do [the Bruce Springsteen-penned] "State Trooper" because their new album was showcasing Michael Timmins as a better guitar player than he had ever been. So I went back to their first album and chose a song that had a great guitar element to it, and they got really excited about that because they hadn't played it much lately. They agreed that Michael was going to have some fun doing the guitar part on that again, and I think it's brought out on that track—you can hear him doing some great work."

When young phenom Fiona Apple came into the studio, Douridas asked if she would perform her plaintive piano and vocal ballad, "Never Is a Promise," but at first she was reluctant. "She had a band with her and didn't want to do a solo thing," Douridas says, "and also she had never really played that [song] much live because it was very intimate, and it really put her in the spotlight." She finally agreed to do the song, but when she took her place at the studio's Yamaha baby grand, she was a little nervous. In the middle of the song, Douridas continues, "she hit a wrong note and stopped. This is live on the air. She was like 'I'm sorry, I'm sorry,' and I said 'hey, it's okay, it's just us. Just take a second and start again whenever you're ready, it's totally fine, casual.' She gathered herself to go in for a second try, and she nailed it." The edgy emotionality of this second take is captured on the CD. When recording, Carlson was able to isolate Apple's vocal well by placing 414s inside the piano, putting a blanket over it, then using an SM58 on her voice. He used an LA-4 compressor and a judicious amount of SPX1000 reverb on her vocal on the way to first DAT then broadcast.

"The fact that it's live on the air galvanizes the entire process," Douridas says, "because they're on a razor. It's like a recording studio, but they have no net." Of course, when recording is happening in such live and spontaneous circumstances, mistakes are inevitable. When it comes to choosing songs for the CDs, occasionally Carlson and Douridas have to hash it out over different priorities. "Sometimes Bob's listening to what it sounds like, how it was knobbed," Douridas says, "and I'm listening to what they're saying and what the songwriting is. He's a stickler for technical proficiency, and that's his role, but sometimes I'll be in love with a track that has an emotional power to it that overrides what it's lacking technically. Like the Patti Smith track—I think the guitar on it bothered the hell out of him." (To hear some of the songs that didn't make the cut as well as artist interviews, surf to www.kcrw.org, where there's an archive of some of the original *Morning Becomes Eclectic* broadcasts.)

"Eventually, we're going to get to the point where we're recording to multitrack," Carlson says, "because sometimes there are performances that are really good except for one element that is so off it wrecks it and you can't use it. But I would never do it so we could re-record anything." That's good to hear, because the series' unpolished quality is a vital aspect of its charm. If nothing else, *Rare On Air* is a wonderful example of how live, 2-track sessions can reveal something often muted on more belabored recordings—a magnetic human spark. ■

—FROM PAGE 173, HERE COME THE EGG-MEN

wicked grooves. An added bonus is that Revell uses, along with various pedals, a Roland GR-50 synth module with his Stratocaster. This allows him to create either guitar or synth sounds or a mixture of both, enabling him, in some ways, to be a second keyboardist.

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ALESIS

The Egg have built their reputation on energetic live shows in the UK that mix multimedia material with their slowly mutating live jams. Although certain songs have developed through concerts, they evidently are not played the same way each night out. And because they don't rely on backing tapes or DATs, the band can elongate or shorten pieces and speed up or slow down songs based on the vibe they get from an audience, and thus have free rein over their material. And that's something preprogrammed techno does not allow for. The challenge in recording their debut was to capture their live energy and fluidity without sounding manufactured.

That seemed simple enough when the band stepped into Cornwall, England-based Sawmill Studios, working with producer Joe Gibb (whose credits include the Stereo MCs, Leftfield and Massive Attack) and in-house engineer John Cornfield (Oasis, Supergrass, New Model Army), to lay down the tracks for *Albumen* (Discovery Records). "The budget was quite tight," Gibb explains by phone from a studio in Frankfurt, Germany. "We had ten days to record the tracks and mix them. So we were pretty pushed for time. Despite the band's tight playing and live energy, the studio was a bit daunting at first. They spent the first two days trying to get the right mix, working with computers, loops and click tracks, then abandoned that approach altogether because it was so difficult and seemed to limit the control the band had over its playing."

Revell points out an irony in their desire not to use computers: "It's difficult to reproduce our sound in the studio without spending loads of time—which you haven't necessarily got—just getting into the atmosphere of things. It's a weird one, because with the kind of music we're making, if people are going to dance to it, it's got to be reasonably precise in its playing. You can't be too sloppy, it's got to be quite tight. So we're up against it really by not using computers."

Initially, Gibb fed each bandmember a different mix through headphones, which resulted in more clinical playing. The Egg-men wanted to be able to hear everything so they could feed off of the sound. "Because they had never properly been in the studio before, they couldn't play with individual headphone mixes," Gibb says. "They could only do it when it sounded like it was from a hi-fi." So he made appropriate

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adjustments and fed them all the same mix, which finally helped the band feel at home in the studio.

"It was quite good in that respect," remarks Gaydon. "He'd be really pushing the mix and sticking in loads of odd effects and trying to make the mix as exciting as possible for us. We could really get into the playing because it was just sounding really good in the headphones. And he was sticking in loads of weird reverbs and echoes and mashing things up. Trying to inspire us to play a bit better." Sawmill is equipped with a number of reverbs, including Lexicon

PHOTO: TIM KENT

Top to Bottom: David Gaydon, Ned Scott, Maff Scott and Mark Revell

480L and PCM 60 and 70 units.

"It was all done live, and there were a few overdubs, but not many, because there was no time," says Gibb. "It was quite ambitious what they were trying to do," Cornfield adds. "They're trying to get this chill/dance groove stuff going, but playing as a band with no clicks, and trying to get it in one go as much as possible with minimal overdubs." Most of the material had reached what Gaydon calls a "natural conclusion" through live playing, but four tracks were jammed on and built upon in the studio, including much of "Shoplifting."

Albumen was recorded using a Trident 80B console. Besides analog 2-inch tape, Cornfield also had available a Tascam DA-88 and a PC-based Tascam Session 8, each providing eight additional tracks for different situations. Cornfield also uses Cubase audio software. "John is a bit of a tech-

no whiz-kid," Gibb declares, "and he's taken his desk and added loads of bits and pieces onto it. So it's a bit like the Millenium Falcon [Han Solo's spaceship in *Star Wars*], this old desk that's been really souped up."

Gibb used a variety of mics on the sessions: On drums, an AKG D12 for the bass drum, a Shure SM57 on the snare, Sennheiser 421s on the toms and Neumann U87s as overheads; the keyboards (including a Minimoog and an old Ensoniq sampler), bass and Revell's guitar synth module were all direct to the mixing board. Neumann U87s were used on the guitar amps and vocals (keyboardist Scott raps on a couple of the tunes, while the rest are instrumentals).

With the band playing live, bleed-through could have been a problem, but since half the bandmembers were patched in directly to the mixing board, that made it less of a worry. "Any bleed that was in the room just adds to the ambience anyhow," notes Cornfield. The one element that created a slight bleed problem was the drummer's tambourine. Maff Scott has an unusual approach to kit-playing: one hand wields a stick while the other holds what his bandmates have dubbed the "Mafforine." "It's a sawn-off chunk of a plastic tambourine with a rounded end so it doesn't split the skin," explains Revell, "and it's got the tambourine bits in it, so it gets picked up by the hi-hat mic. By playing the hi-hat with the Mafforine, Scott gets a chicka-chicka-chicka sound that is similar to but richer than a sequenced percussion part. But Scott also uses the Mafforine on the ride cymbal, creating a louder sound than normal."

The group used a minimal number of drum loops on the album as well, their one concession to computer technology. Using the Session 8, the band pulled out some drum loops from Scott's playing on earlier demos for the album, and edited them into the mix. The album was mixed at Rollover Studios in London on a Soundtracs Jade desk. While the final result of these debut sessions for The Egg certainly show a group with a promising sound and approach, Gibb confesses to being slightly less than satisfied with the mixes—not because of the band's performance, but due to the limited time they had to record the album. "I wish we'd had three months to do it rather than ten days," he laments. Either way, the results are still strong, and above all, the groove is maintained. ■

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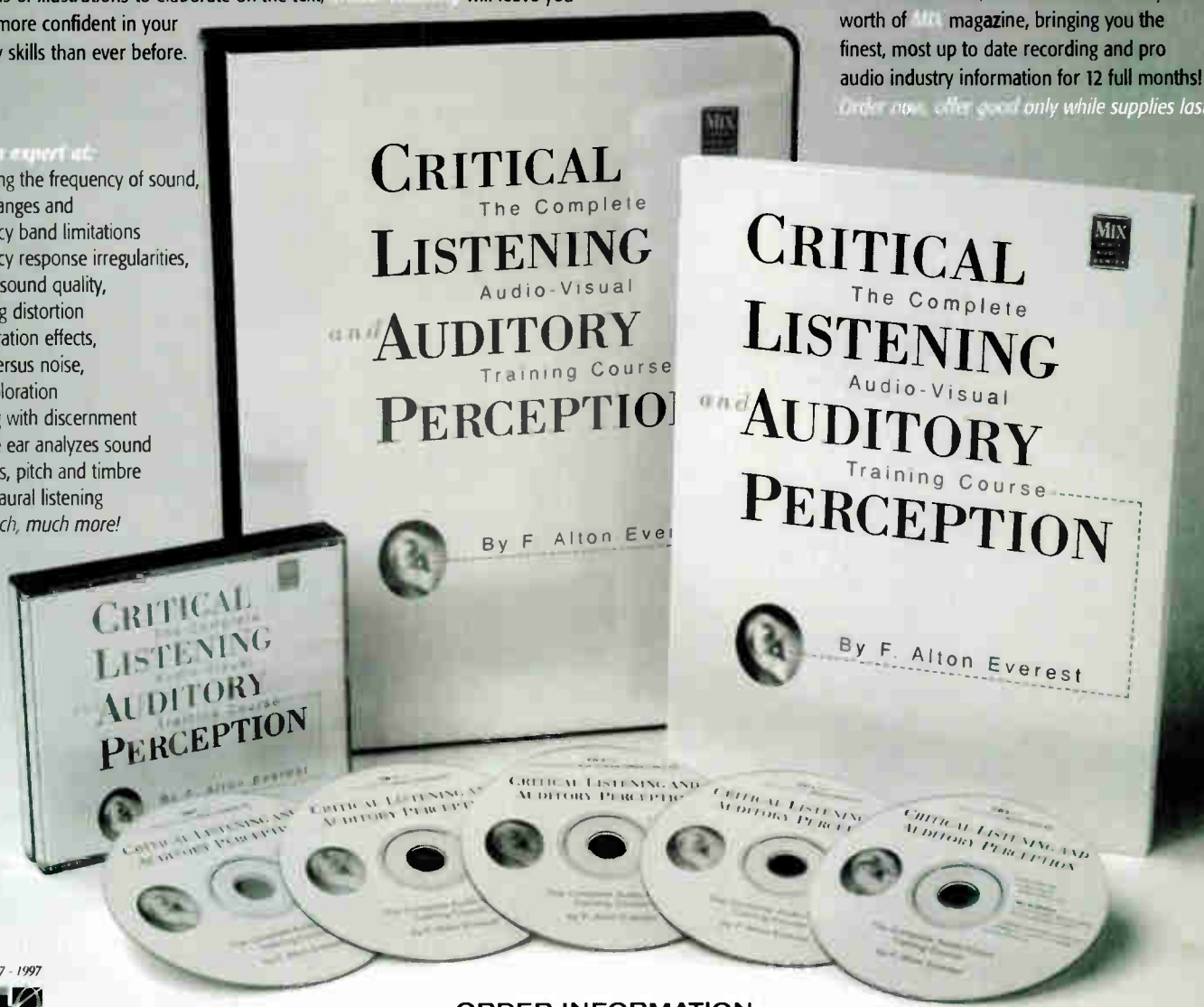

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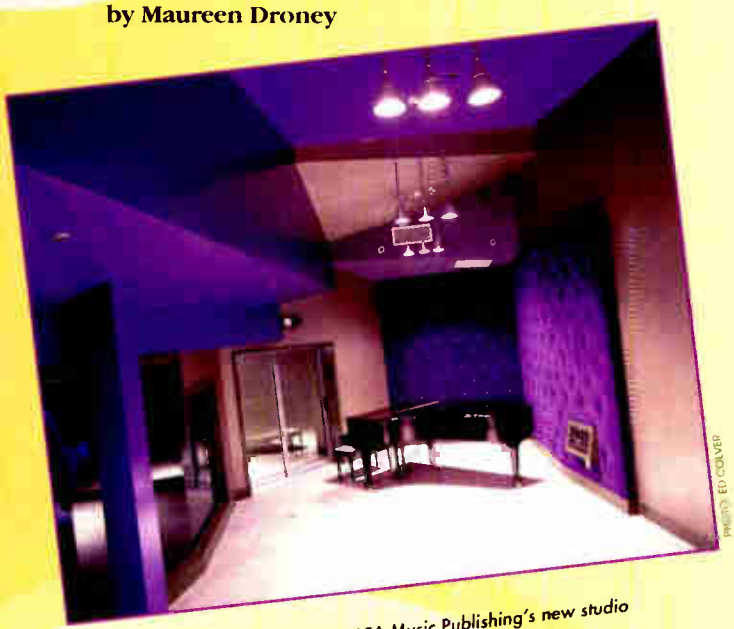

PHOTO: ED COLVER

The tracking space in MCA Music Publishing's new studio

The acoustic and architectural design firm of Studio 440 has been busy with numerous projects, including an 1,800-square-foot studio in the new West L.A. offices of MCA Music Publishing. *Mix* visited the space, which includes a control room with an API Legacy console, a large tracking studio and an iso booth. 440 worked closely with MCA head engineer Mike "Fen" Fennel, to create a comfortable home for MCA Publishing artists and composers. The intention, according to 440's Ross Brennan, was to provide a "rich, urbane" atmosphere using traditional studio finish materials in innovative ways, including rubber flooring in the control room, "tuck and roll" fabric in the tracking space and metallic finish over wood "shingles" in the control room. "We used some concepts that are simple and cost-effective, but elegant," says Brennan, "including raw aluminum lamp holders, exposed ground and sealed concrete floors, and metallic paint for rich surface finishes. We also paid careful attention to the lighting to enhance the color and texture."

One way 440 kept costs down was by using off-the-shelf engineered products for some applications. For example, the jack-up concrete isolation slabs were designed and engineered by Mason West, the company that currently provides floating slabs for the L.A.

—CONTINUED ON PAGE 198

NY METRO REPORT

by Dan Daley

Sync Sound is expanding. Sometime early this summer, the facility's partners will open a new company and new facility. Digital Cinema, a joint venture between Sync partners Ken Hahn and Bill Marino, and Oscar-winning sound mixer and former Todd A/O staffer Rick Dior (*Apollo 13*), will open in a ground-up facility designed by Marino and Jimmy Mahar of Soundhouse Design. Digital Cinema will be located on W. 55th street, around the corner from the current Sync Sound facility, which will continue in operation.

Technology choices for the all-digital studio include a Neve Logic 2 console configured similarly to the one that's been in operation at Sync Sound for the past five years, as well as capability to handle all types of digital cinema playback systems (including Dolby and DTS) and Tascam DA-88s as the transfer and dubbing format.

"We see a need for a higher level of film mixing in New York," explains Hahn, who last year won the C.A.S. award for sound for "The Three Tenors Live at Giants Stadium," and an Emmy for television's "Hollywood Sound."

Blank Productions in Stamford, Conn., opened its second Avid digital suite in April. The room was designed by Bob Blank and interior designer Malcolm Young and features Avid's Media Composer system in-

—CONTINUED ON PAGE 202

Meeting of the legends: George Martin (R) came to Your Place or Mine Studios in Glendale, Calif., to film an interview with Brian Wilson for a new BBC documentary series about music called* The Rhythm of Life. *The two were filmed dissecting the master multitrack tapes of Beach Boys' classics "God Only Knows" and "Good Vibrations," demonstrating how the records were constructed. At left is studio owner/engineer Mark Linett.

SESSION SPOTLIGHT

by Adam Beyda

311 AT NRG RECORDING

A couple of years back, funk/rock band 311 cut their eponymous third album at NRG Recording Services in North Hollywood, Calif. Two years and 2 million units later, the band were getting ready to record again. They looked into a few other studios, but since they'd had such a good experience the first time, it made sense to return to NRG.

The band ensconced themselves in Studio B—a beautiful, Moroccan-themed space that NRG had constructed in the interim—for sessions beginning on March 11, or 3/11. (Sure, they planned that one, but when studio manager Kit Mitchell began preparing the band's invoice, she noticed that it just happened to bear the number 311—coincidence, or...?) They set about the arduous task of tracking the 29 songs they had worked up over a few months of preproduction, co-producing with their longtime comrade and engineer Scotch Ralston (helped by second engineer and NRG stalwart John Ewing, Jr.).

Ralston says he and the band ironed out almost all the arrangements in advance, so that when they hit the studio they were ready to get down to business. "On the last record they were trying to capture the live flavor—their live shows have all this energy. It worked out great, but they wanted to try a different approach on this record—a little more overdub style. So far everyone's been really happy with that method, because you get to focus on each individual instrument a little more than when everyone was playing at once and you just hoped for the best take. This time they're layering in a few more sounds—some electronic sounds, a lot more percussion—and trying some experiments with different things to add some spice. Some of their songs are pretty futuristic-sounding right now."

Scotch Ralston surfing the 8078 at NRG

PHOTO: ALLISON DYER INSET: MAUREEN DROMEY

Another departure involved drummer Chad Sexton. "We set the drums up in a large iso booth in the corner instead of out in the big room where most people do them," Ralston says. "Chad just wanted to get a different sound than what's going on these days—it seems like almost every record has that big room sound. They've added a little bit more reggae aspect to this record, and he likes the really dry, tight sound on the snare, so we're just getting better isolation in the booth, it's a lot cleaner. But I still have the doors open, and mics up in the big room, so we're getting some of that sound too."

Studio B is equipped with a custom 64-input Neve 8078 with Flying Faders and custom, free-standing Dynaudio Acoustics M4-C main monitors, assisted by four Dynaudio Active Bass Extension System subs on the floor. (The system is a prototype built for NRG of a design now in production.) "We're low-end freaks," Ralston says, "so when I saw the subs down there I was like, 'yeah, we're in business.'"

Knowing (and liking) the monitors and the room's sound (they referenced their rough mixes to all their home and car stereos), 311 were planning to stay in Studio B to mix the record. "I think we're one of the first [bands] to do a big mix in this room," Ralston says, "so I hope we won't blow it up. They've had to do some mods on the board so we can have enough effects sends to accommodate what we're going to do, and hopefully it will work. If not, we might just go [into Studio A], kick out whoever's in and mix over there!" If the band chooses to return to NRG next time around, they might have even more options, as plans are in the works for a new mix room. But with fruitful sessions behind, for now the 311 focus is on the new album, and anticipation is running high. Look for a late summer release. ■

SESSIONS & STUDIO NEWS

SOUTHERN CALIFORNIA

Epic act **Tower of Power** overdubbed for their next release with engineer **Ken Kessie** and assistant **Troy Gonzalez** at Sony Music Studios in Santa Monica. Columbia artist **Sophie B. Hawkins** was also in, working on new material with engineer **Mark Endert**...Recently in at **9th Ring Studio** in La Mesa: **Broken Dial Radio** working on their debut for European release, and punkers **Jon Cougar Concentration Camp** recording their second CD for Mullethead Records. Both projects were produced and engineered by **Andy Tolley**...**Jennifer Dragon** mixed tracks for her debut album with producer **Chris Giannini** and engineer **Steve Gallagher** in Studio B at **Encore Studios** in Burbank. **Paul Naguna** assisted...**Everclear** put the finishing touches on their next Captiol release at **Ocean Studios** in Burbank with producer **Art Alexakis** and engineer **Neil Avron**. **Ken Van Druten** assisted...North Hollywood's **Blue Palm Studios** had producer **Val Garay** in mixing tracks for Warner Bros. International artist Floy...Producer **Heavy D.** and engineer **Rob Chiarelli** mixed tracks for Uptown/Universal artist **DJ Rogers** at **Larrabee Studios** (West Hollywood). **Steve Durkee** assisted...

NORTHEAST

At **Valerian Studios** in New York City, **Gato Barbieri** recorded his first new album in ten years, *Qué Pasa*, for Columbia. **Philippe Saisse** produced with engineers **Roy Hendrickson** and **Christian Wicht** recording and **Mick Guzauski**, **Frank Filipetti** and **Roy Hendrickson** mixing...Angel Records artist **Catie Curtis** spent a week at **Sound Techniques** in Boston overdubbing for her upcoming release with producer **Roy Bittem** and engineer **Ed Thacker**. **Tom Richards** and **Scott Robertson** assisted...**Sigma Sound Services** in Philadelphia has been busy with a number of sessions, including Interscope artists **Pure Soul** tracking for their next album with producers **Kim Jordan** and the team of **Eric Benet** and **George Nash**. Haqq Islam executive produced. Engineers **Arthur Stoppe**, **Michael Tarsia** and **Gordon Rice** were assisted by **Rick Ridpath** and **Glen Miller**...Canadian faves **The Odds** played a live show recorded for broadcast at **Trod Nossel Recording** in Wallingford, CT...**The Gefkens** mixed a new release with producer **Don Fleming**, engineer **Bil Emmons** and assistant **Gary Townsley** in the A room at New York City's **EastSide Sound**...**Indian Summer** worked on a new MTI Records release at **Cotton Hill Studios** (Albany, NY) with producers **Dan Castle** and **Jon Yusaitis** and engineer **Ted Malia**...

NORTHWEST

Greg Kihn was at San Francisco's **Coast Recorders** recording a version of "Thunder Road" for an upcoming Bruce Springsteen tribute album out this summer on EMI. **John Cuniberti** produced and engineered. Columbia artist **Destiny** was also in the studio, mixing with producer **Duane Wiggins** and engineer **Jay Lincoln**. **Mike Johnson** assisted on both sessions...San Francisco skainesmates **Marzipan** recorded a new album with producer/engineer **Greg Freeman** at his local studio, **Lowdown**...At **Ironwood Studios** in Seattle, **Tuatara** recently completed recording and mixing their debut

PHOTO: DAVID GOGGIN

New Point Blank/Virgin artists Boneshakers worked on their debut release, Book of Spells, at L.A.'s Brooklyn Recording with engineer Terry Becker (seated at the Neve 8078). Bandmember Randy Jacobs (L) produced, and Sweet Pea Atkinson (of Was [Not Was] fame) is the group's singer.

release *Breaking the Ether*. The band includes Barrett Martin of Screaming Trees, Skerik of Critterz Buggin', Justin Harwood of Luna and Peter Buck of R.E.M. **Ed Brooks** engineered and mixed...Pop folk revivalist **Jewel** spent a few days at **Brilliant Studios** (San Francisco) recording a cover of "You Make Lovin' Fun" for an upcoming Fleetwood Mac tribute album with the production team of **Norm Kerner** and **Daniel Presley**...

NORTH CENTRAL

Chicago studio **Performance Recording** had local popsters **The Idea** in mixing their fifth album for the Our House label...Reprise recording artists **Poster Children** cut their latest release, *RTFM*, at Pogo Studio in Champaign, IL, with producer/engineer **Bryce Goggin**, assisted by **Carl Plaster**...**The Chris Aaron Band** mixed at **Smart Studios** (Madison, WI) with producer **Rob Jacobs**. Also at Smart, former Sugarcubes drummer **Siggi Baldursson** and his band **Urban Myth** recorded tracks for their new one...

SOUTHEAST

Epic artist **Brad** and producer/engineer **Brendan O'Brien** tracked guitar and mixed two songs for an upcoming release at **Doppler Studios** in Atlanta. **Mike Wilson** assisted...On the catering cart? Velveeta and Brie—Producer **Desmond Child** completed mixes for a **Jon Bon Jovi** duet with French vocalist **Johnny Hallyday** at Miami's **Criteria Recording**. The Mercury/PolyGram sessions were engineered by **Obie O'Brien** with assistant **Chris Carroll**...**Wynonna** overdubbed for Curb Universal at **Sound Emporium** in Nashville with producer **David Pack** and engineer **David Thoener**...Nashville's **Masterfonics** had River North artist **Peter Cetera** in tracking and mixing with producer **Dann Huff** and engineer **Jeff Balding**, assisted by **Mark Hagen**...**Mark Chestnut** mixed for a Decca release with producer **Mark Wright**, engineer **Greg Droman** and assistant **Tim Coyle** at **The Sound Kitchen** in Franklin, TN...The Atlanta-based RM Audio mobile unit recently recorded gospel great **John P. Kee** and band at the Atlanta Civic Center...

SOUTHWEST

Robbie Robertson worked on *The Native Americans II*, in collaboration with **Jim Wilson**, at **Stepbridge Studios** in Santa Fe, NM. Studio owner **Tim Stroh** manned the SSL and Neve consoles, with additional engineering by **Kyle Johnson**. The studio recently installed a vintage Neve BCM-10 sidecar console with 1066 mic pre/EQ modules...In Studio A at **Sierra Sonics Recording** in Reno, NV, **Phil Kaufel** mixed a solo release for **Mike Tramp**. The project was the first done on the studio's newly installed SSL 4072G...**The Derailers** recorded for a new Watermelon Records release at **Arlyn Studios** (Austin, TX) with producer (and guitar great) **Dave Alvin** and engineer **Stuart Sullivan**. Alvin and Sullivan also worked on Alvin's next solo project for Hightone Records...

STUDIO NEWS

Bad Animals/Seattle is selling its SSL-equipped recording room, Studio X. Company president Steve Lawson says the sale of the studio, specifically built for large-scale music recordings, will allow Bad Animals to concentrate on its core business of sound design, orig-

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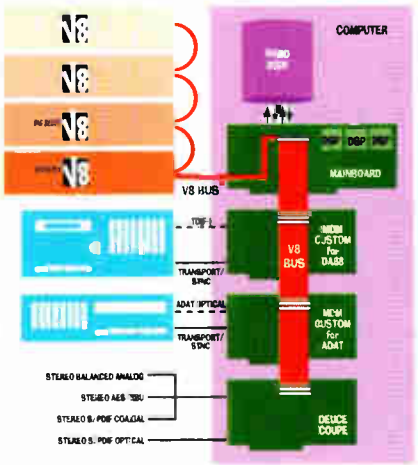

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inal music composition, voice-over and more for film, video and multimedia productions...**The Music Lab**, a project studio in Hollis Hills, NY, has just installed the Mega Mix inboard automation into its AMR Production Series console...New York equipment rental company **The Toy Specialists** opened a new format transfer room, The TransferMAT, to address the conversion needs of recording studios, music producers, post houses and others faced with the growing range of digital and analog audio formats...**Steve Winwood** purchased a PMC BB5/XBD monitoring system for his private studio in the UK. The sub 20Hz, three-way BB5 system features a 14-foot folded transmission line bass loading system and soft-dome mid- and high-frequency drivers...TCI (Denver, CO) installed two Amek Recall by Langley automated consoles in its National Digital Television Center remote production truck. The first project recorded was a concert featuring the Pointer Sisters and Little Richard...Bethlehem, PA, facility Sloyer Sound was recently rebuilt and rechristened **Angel Mountain Productions**. The new studio is equipped with a Soundcraft DC2020 console. ■

—FROM PAGE 194, L.A. GRAPEVINE

Metro subway system. "It's something a bit different that we do," explains Ross. "Because of the precision and higher tolerances of premanufactured products, we specify architectural items that are factory-made and factory-tested. For example, we specify metal sound doors, not site-made wood doors; you just can't manufacture a one-off wood door to the specifications that a company that makes metal bank doors can. Studio owners often think they can save costs by making acoustic items themselves but actually end up with higher labor costs, less reliable quality, and a less durable and serviceable product."

Wiring design and installation was by Vertigo Recording Services, and the general contractor was Continental Studio Builders, with speaker tuning by Bob Hodas using the SIM System II. The 32-in API Legacy console, on which (at the previous MCA studio) Glen Ballard and Alanis Morissette cut many of the tracks that were used on the *Jagged Little Pill* album, is, according to engineer Fennel, extremely flexible. The 32 fader inputs have sends that double as inputs, making, with the 32-in monitor faders, a board that has 96 inputs available for mixing. "It's a great-sounding board, and it's also very basic," Fennel says. "Anyone can use it." Other equipment highlights are a Lexicon 480 L and Eventide H3500, Pultec and Sontec EQs and a pair of Neve broadcast-style compressors. Recording is to 24-track analog and a Spectral System hard drive recording system. Fennel informs us that the Spectral is a favorite with clients who have already mixed to DAT and merely want to add a part or two to their finished mix. "We just digitally lay in the stereo DAT mix to the Spectral and they have six more tracks to overdub on," he says. There are also, as you'd expect to find in a composition room, several keyboards including a Yamaha C3 grand piano with Forte Music MIDI module, two Fender Rhodes and assorted Roland and Yamaha synths. "It's great," says Fennel. "We've moved from being just a demo studio to where we can cut masters here now." Since opening in March the studio has been host to a combination of live tracking and electronic projects, with artists recording including Raymond Jones, Kelly Price and Mark Nelson.

Studio 440's other current projects are a 35,000-square-foot studio and office complex that will house both Babyface's Edmonds Entertainment and his wife Tracy Edmonds' Yab Yum Entertainment in Hollywood, Nada Studios in Kuala Lumpur, and studios for KNTQ/KLVE radio in Hollywood.

Stopped in over at Stage 26 on the Warner Bros. lot to visit with audio mixer Phil Brown who was working on Brooke Shields' hit sitcom *Suddenly Susan*. Brown, known to his friends and co-workers as "the Howard Stern of audio," (see picture) has been mixing all season on the show, which is filmed in front of a live audience, and, as many series are lately, is shot to film instead of videotape. A quick glimpse at the console made it obvious that the job was about more than just mixing a few mics; Brown is in charge of overall communications and onstage playbacks along with the various feeds to the audience P.A., making the work closer to that of a live sound mixer than a studio recordist. Although there are only two

PHOTO: MAUREEN DRONEY

Phil Brown, the Howard Stern of audio, on Stage 26, Warner Bros.

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main boom mics covering the actors, there's also a mic for the audience warmup comedian and plant mics placed about the stage, along with a plethora of lines run "just in case" for mics, RTS communications and effects speakers. "Those lines get run at the beginning of the season, so if I need to place something during blocking I'm ready," Brown says, "because you can't waste any time; no one wants to wait five minutes while I set up a fishpole and a mic."

Suddenly Susan is recorded to 4-track analog tape, with tracks for dialog, stereo audience and timecode, and to a 2-track backup with dialog, mono audience and center-track timecode. Playback speakers run at low level for the director are set under the video monitors on the set, and effects speakers mounted on the boom pedestals are used to cue reactions. "We play back effects that don't go under dialog," Brown says. "The others are added in post." The console is a Ramsa SA40. "I need a P.A. board," he says. "There's so many aux and matrix feeds going all over the place."

Most sitcoms currently shot at Warners, such as *Friends, The Drew Carey Show* and *Life With Roger* are on film. It's easy to see the difference on your TV screen between a film and a taped show. According to Brown, there's a big difference in the audio mixer's job between a film shoot and a taping. "On a film shoot, you are the director's ears," he says. "On a video shoot the director or associate director is listening and giving audio cues, but on a film show the director's on the floor and there's no one calling cues; the mixer is responsible for much more: Basically, all the technical aspects of the show that don't require a camera—cueing and all the feeds, including video." Those feeds include lines to the camera coordinator, boom operators, the warm-up comic, effects speakers, rollarounds for the director, a speaker backstage for extras, etc., and one to the VIP room where network execs may be watching.

Susan is on a five-day schedule. There are three days of rehearsal for actors; the sound crew comes in on the fourth day for blocking and preshooting of location scenes and teases (There tends to be a lot of preshooting in what Brown calls the "Seinfeldization" of sitcoms, where there are a lot of short scenes in different locales.) On the fifth day, there's more blocking and, finally, filming. The episode is run through with each scene shot twice and playback for the audience of previously completed scenes. Filming usually takes about three hours, with pickups done after the audience is gone.

It's a tight schedule, with the pressure (and high spirits) a hit show generates. "My job is just to deliver a clean signal to post-production," observes Brown, "where they have the time and the monitoring environment to judge what's really going on. But I have a lot of responsibility—these shows are fantastically expensive to produce, and I've got to get it right. They can cut to another camera if they don't get a shot, but there's only one soundtrack."

Old Skool Productions—the team of producer Bradley Spalter and engineer Adam Kagan—has been working lately in collaboration with producer/songwriter Robbie Nevil. This triple-threat trio has just finished up four songs for Aaron Neville's upcoming A&M Records release, including the title track "To Make Me Who I Am," and a song titled "Simple Days," co-produced with Kenny "Babyface" Edmonds for his new album and written by Spalter, Nevil and Emanuel Officer. Spalter and Kagan are a longtime team—they've been working together since high school, mostly in Chicago, where they established their reputation working on dance music. Three years ago, they set up shop in L.A. and hooked up with Nevil (yes, the Robbie Nevil of "C'est La Vie" and "What's It to Ya"). "We started working with Robbie when he was thinking of doing another solo record for himself," says engineer Kagan. "We hit it off and started writing and producing together for other artists."

The Aaron Neville project is a special one for the team, who specialize in crossover R&B. "He's the sweetest man in the world," Kagan says, "everything he writes about he gets from his own life, and he really has a lot of stories to tell...everything he says is truthful." Upcoming are projects for some new artists, J'son's second record for Hollywood Records and Elijah on their own Old Skool Productions, as well as songs for K-ci and JoJo Hailey from Jodeci. "With music becoming more acoustic," comments Kagan, "it's been getting easier to bring more traditional R&B and musicality to projects and not so much drums and loops—things are really opening up in that direction. That's what we want to do, more musical R&B and urban music." ■

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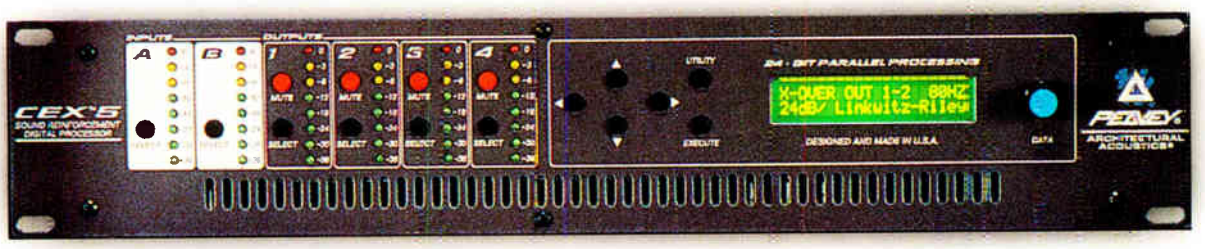

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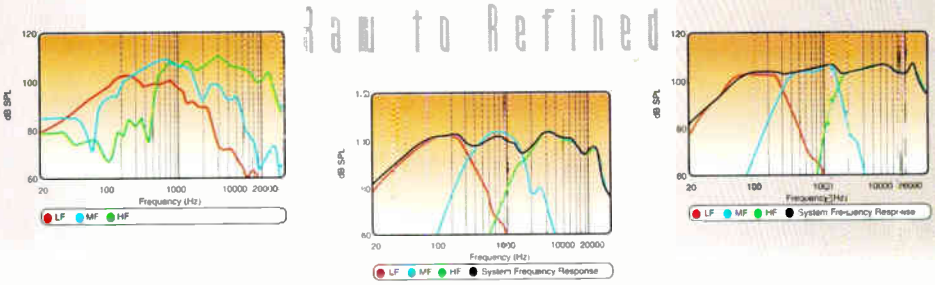

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—FROM PAGE 194, NY METRO

tegrated with a computer graphics package that includes Comet CG, Aftereffects, MediaPaint, Photoshop and Illustrator. "The integration of graphics into the [audio] edit suite cuts costs for both the clients and us," says studio president Lola Blank. "These days, not having CG right in the suite means unnecessary time and slower workflow." First projects for the new room include material for DVD projects, commercials for Gray Advertising and A&P.

New York has seen a rise in the mid-level mastering niche. Based largely on the increase in number and influence of independent record labels, these rooms offer an alternative to the thin upper strata of mastering facilities here and elsewhere.

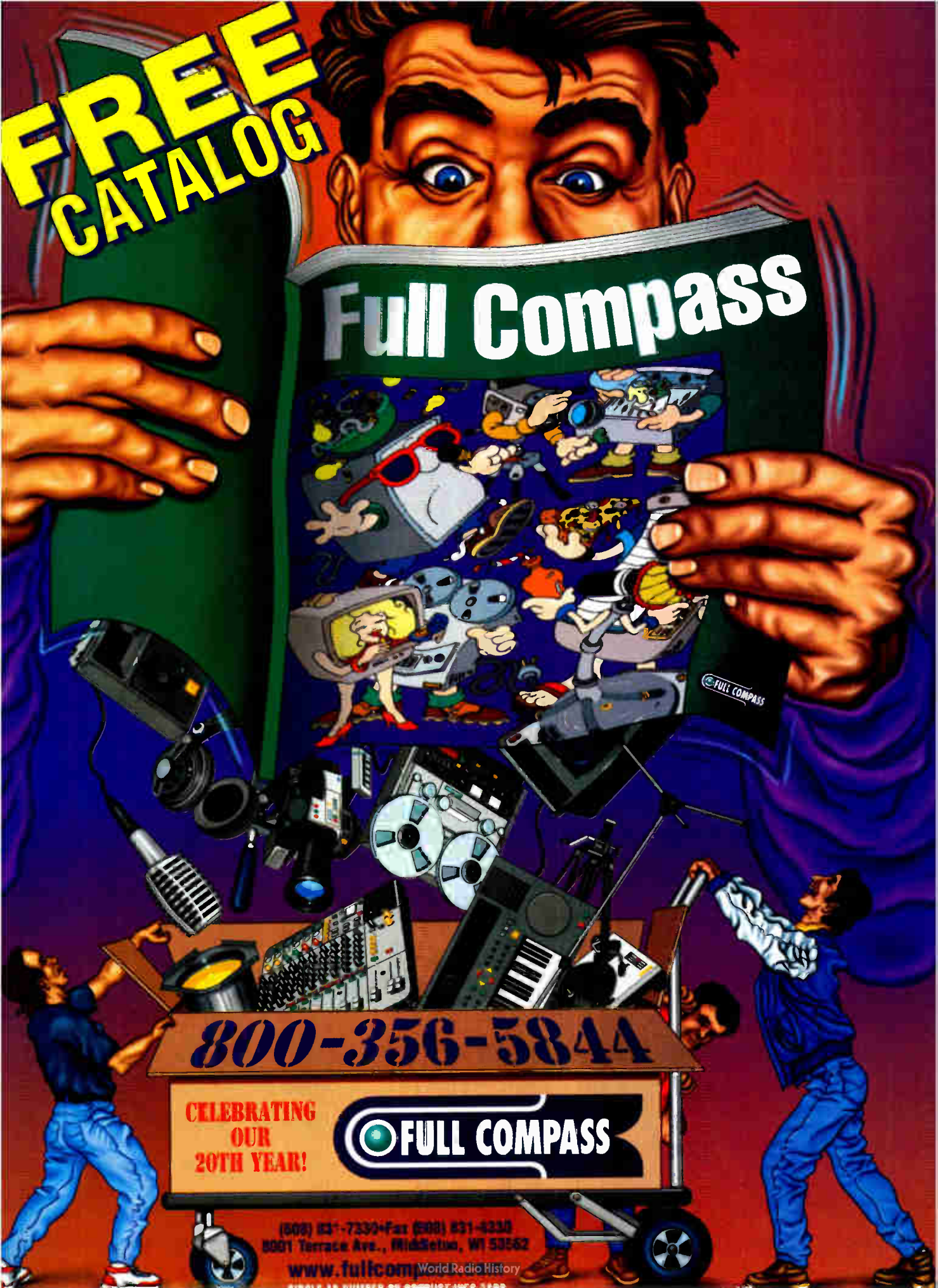
One of the first such rooms in Manhattan is **Mediaforce**, which opened a year ago April as the sister division to Audioforce Rentals and Audioforce SR. Originally a variable-use space when Audioforce moved uptown to larger quarters, the room, designed by local studio designer Mark Richardson, evolved quickly into primarily a mastering suite with the arrival of journeyman mastering engineer Rick Rowe, who was given a free hand in setting up the room, its rates ($200 per hour card) and policies. "The clientele is pretty varied," explains Audioforce/Mediaforce owner Tom Lewis, "lots of independent record labels and some major label work, as well as things for producers like Russ Titelman and the annual CD for the Rock and Roll Hall of Fame. But the mastering room has been a success mainly because of Rick."

Though the room is still used for transfer and archival work (as well as some film mixing with an Otari Status console) Rowe, working with a SADiE DAW with Harmonia Mundi EQ and Tannoy DMT-15 mains, draws upon the rental company's extensive technology inventory to keep the room flexible. "Having your own room is tremendous," says the 27-year veteran, who has done recent projects there for Art Garfunkel and Marky Ramone, as well as the Billie Holiday 10-CD set. "You get to be much more focused mentally and professionally."

Another new mastering studio is **Ground Zero**, spotlighted in last month's "Coast to Coast." The room is intended to be the first of several studio facilities in its complex. Studio consultant Jimmy Biondolillo says that, at a card rate of $275 per hour, Ground Zero was not attempting to enter the downmarket end of mastering but rather the upper-midrange part of it. "Record companies are used to paying fair market rates for mastering services, something they're no longer used to doing for recording and mixing," he explains. "It's reasonable to expect that same downward push on pricing will at some point affect mastering. But for the time being it's an area of the pro audio business that offers a much better rate of return on investment. We can use the business we generate with mastering to build the rest of the facility around."

Sony Studios added Ultimation to Studio E's SSL E Series board in March. This comes on the heels of the six-month anniversary of the installation of an SSL 9000J in Studio C. "This place is an ever-changing idea as much as it's a recording studio," observed studio manager Ian Huckabee of the 27-room, seven-studio complex. A visit by Neil Grant, who designed Studio C, was planned for April, essentially a follow-up visit, said Huckabee, who noted that the new room has been a success for both mixing and tracking, being used for Sony Music's "Live By Request" series. The addition of Ultimation to the E Series console was "a natural evolutionary step in that room's development," he adds. ■

Reach East Coast editor Dan Daley at danwriter@aol.com or fax 615/646-0102.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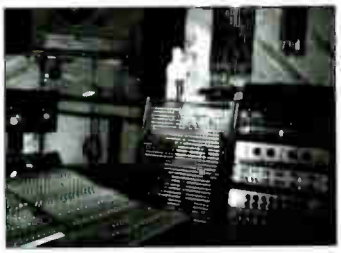
▪ STUDIO SHOWCASE ▪



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—FROM PAGE 16, LIFE OUTSIDE THE STUDIO

It's just one of those facts of life, kind of like we are the ones with opposable thumbs, so we have the Ferraris and Neves (and those real cool NASA atomic clocks). Cats sleep in the sun and have mice and little hollow play-toys with catnip inside. Dolphins, who may or may not have more actual brain-power than we have (I mean, come on; they're smart enough to stay out of the city, aren't they?), have giant food parties followed by giant sex parties. Oh, yes. Now that I think about it, we *must* be the smarter ones.

LEAVING THE GARDEN OF EDEN (BYE, BYE, INNA GADA DAVIDA)

At some point along the dark, twisted path of pro audio's evolution, what was once the single integrated goal (and experience) of making The Best Music Possible somehow fractured. The totality of the combined art of recording, engineering and producing music was torn apart. What emerged were its two fundamental components, separated and destined to become the yin and yang of audio. They require each other to exist, yet each walks its own path, and the paths diverge a little more with each new technological breakthrough. These two co-dependent siblings in denial are Precision and Fun.

Some time ago, I noticed that as I achieved higher and higher levels of precision in my audio monitors, I invariably gave up more and more of the fun of music to get there. I think that most of us have quietly learned to accept that trade-off, though I am not sure why.

Let me give you an example. Some time ago, I built a significant facility around Meyer 833s. They were built into a 4-inch-thick steam-formed, compound-curved solid-oak soffit, and they were driven by copious amounts of bi-amped high-quality power. All room EQ was done architecturally, with not even the slightest use of electronics. RT-60s were dealt with properly, as well (it's the same thing, after all). The system was wonderful and got me lots of those Discs-of-Precious-Metal that I was so intent on acquiring. Oh, yes. It was also fun as hell. I used to rush in there whenever I picked up a new CD or movie, just to listen to them on a system that made me smile.

Then one of those damned points came in my life when I found myself yearning for still more precision and accuracy, so that my mixes would be even more stable and predictable in unknown environments. I needed, as we all eventually came to need, to be able to hear deeper into the music. To hear subtle little artifacts and mistakes, little potential problems. Without quite realizing it, I was being forced by the dramatic improvement in the general state of the art of consumer stereo systems (and, of course, the mere existence of CDs) to spend more and more of my studio time searching for potential audio problems instead of creating music. And, like most of you, I learned to integrate the two processes, so that problem avoidance and repair eventually became a natural part of the creative musical process. And my mixes became more dynamic, more open, much more three-

dimensional, and even more musical. Haven't yours over the years?

But I needed surgical precision to hear what had to be avoided or fixed. And though I never quite grasped why the state of the art in studio monitors had evolved in this weird way, so that you could only get one *or* the other, I didn't hesitate to give up fun in order to achieve accuracy. I bit the apple and got a set of Meyer HD-1s the day I first heard them. These were the ice-cold, razor-sharp, cruel, all-revealing audio windows to the very silicon junctions inside my gear that I needed. I knew instantly that I had the alien technology that would let me see deeper into the creative technical process than I had ever thought possible. I turned off the power amps to my 833s that day, and interestingly, they have *never* been turned back on once in eons since! The little HD-1s taught me how to mix all over again. But now the only time I bring a CD in to hear on them is when I want to know exactly how it was mixed—*never* for fun. And even worse, we have all been wearing clothes to hide our shame ever since.

BUILD IT AND THEY WILL COME (AND REPLACE IT WITH SOMETHING NEWER AND BETTER)

A few weeks after the HD-1 acquisition (which took 15 minutes to obsolete a system that took 14 *months* to design and build), I began to feel that my supergeek tweezy high-end home system was getting a bit loose and boxy, so I made a note to update it some day and turned it off—for *two years*! Basically, I stopped listening to music for fun, with two fringe exceptions. I have always liked popping a new CD in and playing along with every song as I hear them for the first time. This sort of keeps my chops up, kind of like playing Tetris—you know you will eventually make a mistake and lose, but it's fun as hell to see how long you can go before you do. And I have one of those Totally Insane show systems in one of my cars, an endorsement agreement with Hifonics from some years ago. This is 2,500 watts of pure fun, pure stupid, low-rider, offensive rib-cracking insanity—the kind of stuff this country is made of yet cringes at. But I stopped listening to music at home. Too much like work.

BUT WEIGHT! (A NEW DAY DAWNS)

Recently, some higher-end consumer stereo gear has gotten pretty good. In fact, the rate at which this stuff is improving is much greater than in our pro world. Of course, the consumer world had a lot of catching up to do, so this dramatic technical growth was pretty easy at first. But it has kept going, and as a result, some Circuit City gear now surpasses some of our pro gear in features, performance and abilities. What an embarrassing situation. What an interesting opportunity!

In the past, I have been accused by a few of being elitist, partially because I have praised extremely good gear with extremely high price tags. And yes, I own a lot of this gear. But this type of stuff can pay for itself in one session if it can save you from a mistake or contribute to making your work sound better than the next guy's. And besides, I am.

The other half of the elitist claim comes from the fact that I have absolutely *no* tolerance for medium-high priced "pro" gear with mediocre-to-dismal audio performance. You know that if you read me. I would rather wait and save for a reverb that sounds right than buy one that has a well-known name but sounds like broken glass in a steel drum.

But I also like freaky finds—items that are surprising in their high-performance/low-price combinations. Either way—extremely good, or extremely good for the price—is fine by me. The only thing that isn't fine is poor performance at a pro price.

With that in mind, I have found more and more impressive consumer gear recently. Some of it now lives in my house, and some is even in my studio. Now, stop! Come on! You can't tell me that you don't have some consumer Sony DAT recorder or CD player in your studio somewhere. Be honest. And if you don't, you are missing something.

We in the pro world may be taking ourselves just a dB or two too seriously. Certainly, we need accuracy, but don't we need a little fun, too?

This consumer trend may be our salvation. We in the pro world may be taking ourselves just a dB or two too seriously. Certainly, we need accuracy, but don't we need a little fun, too? Don't you miss it? Well, some of this gear may be a step toward recombining those two orphaned components: Precision and good ol' Amurcin Fun.

So, I have decided that I want to have fun again, and I want to take those of you who see the humor in it all along for the trip. To that end, my next couple of columns will be about consumer gear—gear that is surprisingly good, surprisingly stupid (but fun) and just plain really freaky. Stay tuned and get ready to hold on—extreme is prerequisite. ■

SSC is finding this to be humbling: Some of the consumer audio companies don't know who he is when he calls.

—FROM PAGE 32, HARTLEY PEAVEY

to be 50 or 60 percent, or more. We're now selling to 103 countries around the world. Not many Americans realize that 95 percent of the world's population lives *outside* of the USA. There's more people in China than in North America, South America and Europe combined.

You also have a great deal of experience with foreign trade?

I certainly wouldn't call myself an expert, but I have learned a lot. I serve on an advisory board in Washington, The Industry Sector Advisory Committee in the Commerce Department; I represent consumer electronics. We notify the Commerce Department about problems we're having in the export market—crazy laws that prevent us from selling in places like India. For years, the Koreans, for instance, wouldn't let us in. They were coming into this country enjoying a duty-free situation—what the government calls a "GSP Program." The Koreans were saying that their guitar industry was a fledgling industry; the fact [was that] a huge Korean guitar company made more guitars than all the rest of the world put together! I pressed a case in Washington against them and got a duty imposed. We were successful in doing that, so now we are successful in selling into Korea.

You also enjoy an excellent reputation for supporting your employees, for treating them as part of an extended family.

Yes, Peavey Electronics is a unique corporate environment—for instance, nobody is permitted to call anybody "Mr." Even our phone directory is by first name. (If you don't know somebody's first name, you can have a hard time finding them in our phone directory!) In 32 years, we've never had a layoff, even during the early '80s, when over 100 people were redundant. But, instead of laying them off, we continued to pay them and had them painting walls and sweeping streets. Frankly, we didn't make any money that year, but, on the other hand, nobody went without a paycheck!

We like to remain in touch with the manufacturing side. Peavey is actually an embodiment of the Golden Rule in a corporate setting. We treat everybody exactly like we want to be treated—we don't lie to people, we don't cheat people, and we insist they don't do that to us.

In addition to some 33 manufacturing and related sites here in the U.S., Peavey Electronics also has a manufacturing plant in Corby, northern England. Why England?

They needed a factory. British Steel had a big steel mill there, and they just shut it down. We just finished a new [factory] there last year, and it's one of the nicest facilities we have. We manufacture some of our musical instrument amps there and most of our speaker enclosures for Europe. They're actually designed in Europe, because Europeans tend to like a different sound than Americans.

Music and sound products are not magic; they represent science, technology and experience.

You're obviously a hands-on kind of guy. How do you divide your day?

Unfortunately, I've become more and more of a figurehead. I've gotten involved in watching after political issues. Sadly, the U.S. government is trying to put American manufacturers out of business. We have so many regulations—they've forgotten that somewhere, somebody has got to sell something for our whole system to work. But since most of them are lawyers, they don't understand that. There was a time in history—the "Dark Ages"—[when] you had an elite that had their own language which the people didn't understand. They were the scribes of the time, and they made the laws and interpreted the laws. It occurs to me that in the 20th century we have created another elite that has again created "legalese"—a language that the common people don't understand.

You and your wife, Melia, are actively involved in the day-to-day running of the company. Are your two sons part of the team?

One of them is working in the company—he's involved with computers; the other is still in college.

Obviously Melia is very important to the firm's effective operation, since she is responsible for marketing and distribution.

Melia's official title is president. My official title is CEO, but, in fact, we do a lot of things. We write advertising copy; I do patent and trademark work; I invent things—that's what I really like to do. We write hundreds of letters every month to congressmen, to music dealers, to distributors, to competitors, to trade associations. We're active in the National Association of Manufacturers [NAM]—I served on the board for four years, and now Melia is on the board of NAM, as well as NAMM.

How do you come up with new products?

We interface with dealers. We operate a Co-Act Program. "Co-Act" is an acronym for Cooperative Action; so that if the dealer gets an idea or suggestion or critique, or if one of my competitors introduces a product that he thinks we ought to know about, he just [sends me a note]. You can't cooperate until you first communicate, and communication without action means nothing. That's why we call it Co-Act—*action* is the key word there. We also work with a lot of endorsees and get hundreds of letters from customers all over the world.

You seem to inhabit both ends of the technology spectrum. You have what I call very mature technology—guitars and amplifiers that have been around for many years—but you also produce leading-edge, computer-based systems.

The computer has affected everything. In 1975, we introduced computer-controlled machinery, and [our competition] said that we can't build guitars using computers. Maybe you can't build a *whole* guitar, but you can build precision parts. There is a lot of talk about hand-craftsmanship, but while working with wood it's rare for someone to maintain a very close tolerance. Our computer-based machines can produce tolerances of ±1/10,000th of an inch.

What was the genesis of MediaMatrix, your Architectural Acoustics Division that produces computer-based sound systems?

As far as we know, we were the first people in the world to use DSP to create a synth—the DPM3 Digital Phase Modulation Synthesizer—using [Motorola] 56000 chips. In a synthesizer, you have a bunch of functional modules that you can interconnect to get different sounds. You have generators, envelope filters, gates, EQs and all kinds of different tone and shaping circuits; you can program them to make [the synthesizer] sound like an organ or a saxophone or any other instrument.

MediaMatrix was derived from that kind of technology. Our Architectural

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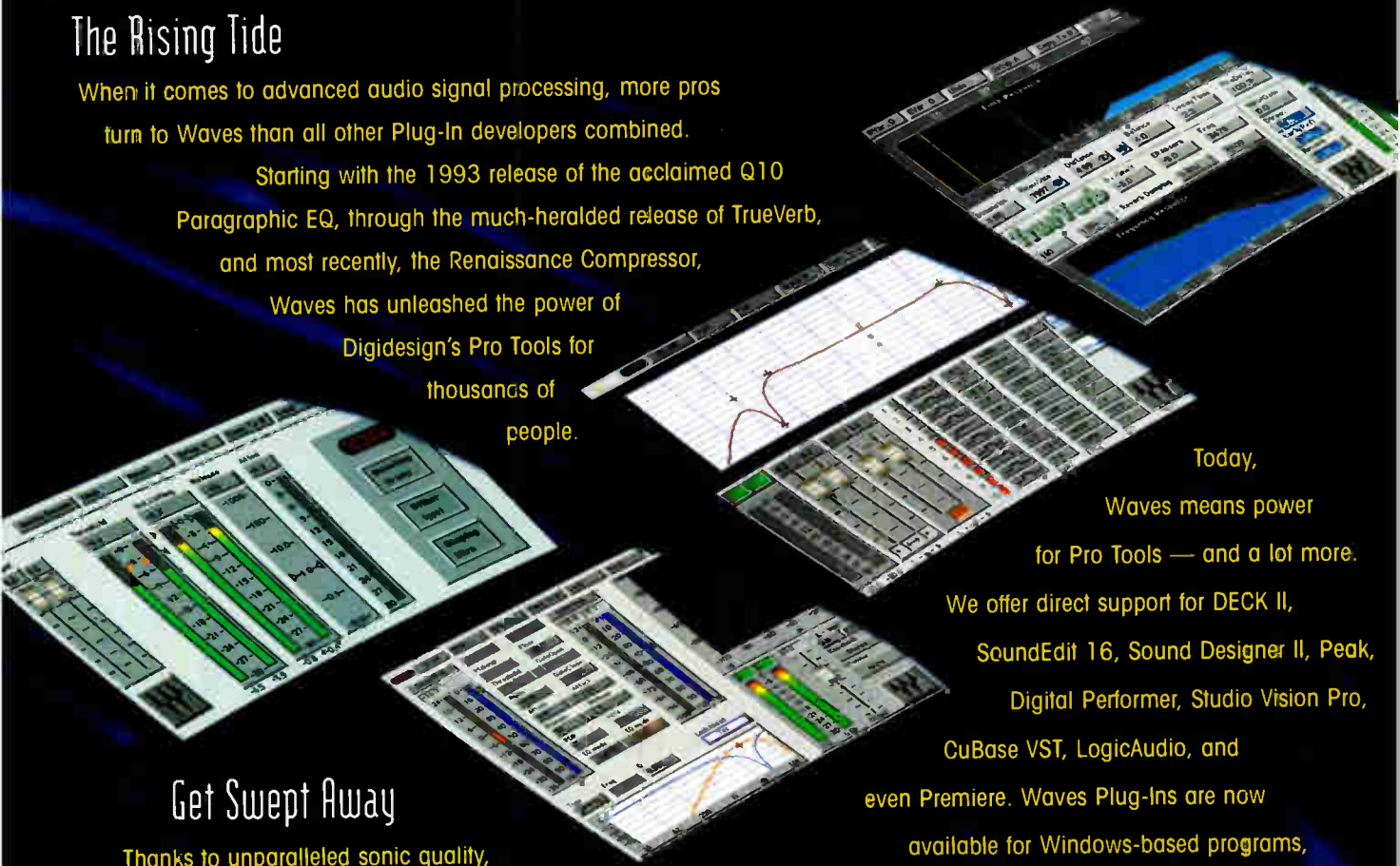
The Rising Tide

When it comes to advanced audio signal processing, more pros turn to Waves than all other Plug-In developers combined.

Starting with the 1993 release of the acclaimed Q10 Paragraphic EQ, through the much-heralded release of TrueVerb, and most recently, the Renaissance Compressor, Waves has unleashed the power of Digidesign's Pro Tools for thousands of people.



Get Swept Away

Thanks to unparalleled sonic quality, a wealth of technical benefits, and fast, intuitive interfaces, Waves means business. That's why the engineers behind countless top records, feature films, video productions, broadcast spots, CD-ROMs, multimedia games, and Web sites consider Waves a vital part of their creative success.

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Today, Waves means power for Pro Tools — and a lot more. We offer direct support for DECK II, SoundEdit 16, Sound Designer II, Peak, Digital Performer, Studio Vision Pro, CuBase VST, LogicAudio, and even Premiere. Waves Plug-Ins are now available for Windows-based programs, including Sound Forge, CakeWalk, Wavelab, and many others. And our utility program, WaveConvert, is an essential tool for any Mac- or Windows-based audio production.

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Acoustics Division deals with the sound contracting industry. MediaMatrix is now installed in the U.S. Senate, the Sydney Opera House, and I understand is about to be installed in the Great Hall in the People's Republic of China. We've supplied a bunch of cathedrals, sports centers and coliseums.

Our Audio Media Research Division deals with the recording industry—we make everything but recorders. We thought about getting involved with [developing] multitrack tape recorders, but it just seemed that tape is [limited]—we think that the erasable optical disc will be the medium of choice. We also have our Cinemacoustics Products Division building THX-approved sound systems for theaters.

Many people assume, wrongly, that Peavey is just this little amplifier company. In fact, we've got more technology than most of our friendly competitors put together. I'm the kind of fellow that gets excited about new things.

In terms of R&D, we probably have as many engineers as most of our larger domestic competitors put together, plus we use a lot of outside specialists. We also have technology licensing agreements all over the place.

How do you keep track of all of these technology developments?

I have about 300 magazine subscriptions. I can't read them all but I scan them and send a literal blizzard of paperwork to our managers and engineers—it's a company joke about how much material I send out! But if I go out into our metal shop and the supervisor wants to talk about the latest advances in metalwork, I need to know about that.

What do you think the future holds for Peavey?

All I know is that there are so many of our competitors getting deeply in debt; they've got stockholders all over the place. As long as sales hold up, they're okay, but if they miss a bank payment, they're in deep. Our strength is the fact that we are operating totally debt-free. All of our facilities are paid for; our inventory is paid for; our receivables are ours and not sold to a third party. Peavey Electronics is one of the most financially sound companies in the business today. And I'm not saying that in a bragging way. I think the music industry is going through some rugged times right now. Some of my competitors are doing some pretty crazy deals, and I don't believe they'll be profitable.

I don't know of anybody in our kind of business, at least in the U.S., that has 32 years of continuous experience. What keeps us running is that every day we that play this game called You Bet Your Company, which keeps our adrenaline pumping.

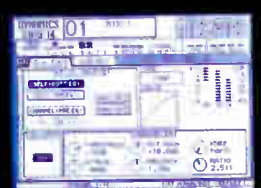
Where do you see yourself five or ten years from now?

At the tender age of 55, I'm trying to re-learn how to relax. I don't play golf, I don't play tennis. Both Melia and I would be classified as "workaholics," but since I was 40, we've been taking off the entire month of July to go boating.

Sometimes when I catch myself feeling sorry for myself, I reflect: "Okay, you think you've got all these problems. If you could change places with anybody, who would it be?" As long as the answer is "Nobody," then I'm in positive numbers. ■

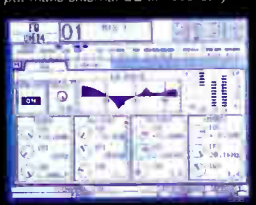
Mel Lambert currently heads up Media&Marketing, a consulting service for pro audio firms and facilities.

Imagine a digital mixer that achieves audio perfection, beats your deadlines and still leaves you with the gas money to get home.



Dynamics. *The 03D includes limiting, compression/gating on every input and output, eliminates the need for outboard processing.*

EQ. *4-band parametric EQ with peaking, shelving and high/low pass filters on every input and output make external EQ unnecessary.*



Surround Sound Assignment & Panning. *03D includes discrete multi-channel surround sound for theater, TV and musical applications.*

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Powerful Processing. Two new state-of-the-art 32-bit digital effects processors come pre-loaded into the 03D. Under the hood you'll also find 4-band parametric EQ and a digital compressor/limiter/gate on every channel and bus. Store your custom settings in 03D's libraries.

Remote Control. Put your entire studio at your fingertips; manage MIDI-controllable hardware, like tape machines and HD recorders, right from the 03D.

Surround Sound. Discrete 6-channel surround sound panning on every channel makes the 03D a must for post production and new multi-channel music applications.

What does the 03D and all of its built-in gear cost? Just $3,699 MSRP. That's your dream come true. So get to a Yamaha dealer and be the first to drive one home.

Yamaha 02R. *The 03D has many of the features of its bigger brother, the 02R shown above. The same impeccable sonic quality and power have made the 02R the choice of top recording and post production professionals.*

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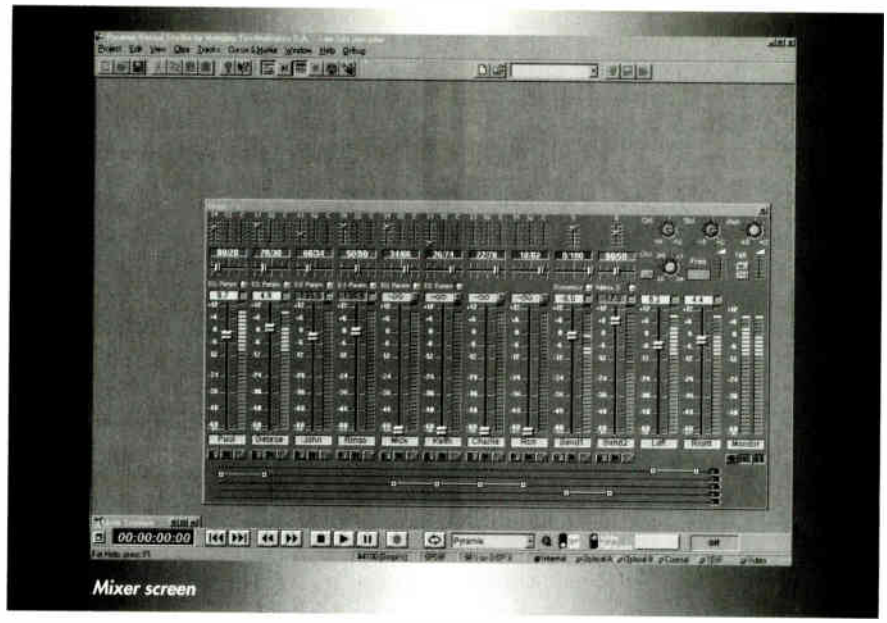
new project file. Here we begin by entering basic information for the project—which tracks will be used for recording, etc.—and then we move on to select which input sources will be available and how signals from the outside world will arrive, including switching between S/PDIF and ADAT format signals at the optical ports. In the same way, we can select various synchronization sources and sample rates (the normal triumvirate of 32, 44.1 and 48 kHz), locked to internal clock, external video, timecode or word clock sources, as well as selecting metering modes (variable headroom, peak/overload hold times, etc.).

Then, having decided that you want to use a setup that will route, let's say, eight external sources (16-input capability is coming soon) from two ADAT ports, blend them together and record them to a stereo pair of music tracks—maybe for a voice-over session—you turn to a Virtual Studio Routing window and literally design your mixing environment. Each SCSI-based hard drive supports a maximum of eight disk tracks, with real-time cross fades; future software releases will offer multiple-board operation, with additional track capacity.

Currently, Pyramix enables a maximum topology of eight hard disk tracks plus up to eight internal or external effects returns (or additional input sources) to be mixed and panned between various outputs. If you have ever used a crochet hook or a wire-wrap system (or, for that matter, a studio patchbay), you'll instantly understand the highly innovative graphic screen that MT developed to speed up the interconnect procedure. You simply drag various input icons to left of the screen, output to the right (hard disk tracks or digital ports), and then mixing/aux modules into the center. Source and destinations can also be named here, with these designations being carried through to subsequent screen displays—a neat touch. Then, using a simple threading tool, you just link sources to destinations and hence build a representation of the device that Pyramix will then replicate in silicon. Pyramix is shipped with a number of preset mixer-routing configurations; all setups can be stored to disk and recalled later. It couldn't be easier.

A Pyramix Channel module accepts either an internal input, external digital audio or a hard disk track, with provision for an insert effects point, pre/post fader meters, gain control linked to an onscreen fader element, with outputs to the main stereo mix, direct out, aux output, and cue/foldback output (with level control). A pair of 8/1 Auxiliary Send/Return modules offer routing from up to eight inputs to the internal or external effects section, and hence to the main mixer or external output. A separate 8/1 Cue module handles foldback monitor sends. The Master Mix module accepts up to ten inputs (eight Channel modules plus two Aux modules) with stereo pan, level control, in-line stereo effects, left/right master gain, pre/post metering and integral connection to the Monitor module. The latter provides the types of functions you'd expect on a conventional console, including talkback, slate oscillator, stereo outputs for control room monitoring and so on.



Mixer screen

The Mixer Interface screen provides icons for up to eight input sources and two effects returns, with master LR faders. Depending on what has been set up via the Routing Topology page, there will be small labels that show what kind of DSP (if any) has been inserted into each channel path—EQ, delay, compression, etc. Controls can also be linked to provide true stereo or multichannel operation. (Reverse linking is also possible, to allow music tracks, for example, to be reduced in level as a VO track is increased.) A meter scale beside each onscreen fader can be set to display pre/post levels. Usefully, pan and similar controls can be selected between slider or rotary pot, with a legend to show the current numeric setting. All main faders, aux and cue send controls, mutes and pans feature dynamic automation against timecode. All other settings are stored as static snapshots of all system parameters. The system can also be controlled dynamically from external MIDI-based devices, including the JLCooper CS-10 and MCS-3000 Series, or the Penny & Giles MM16.

Effects available per module include a powerful 10-band equalizer, all-pass filter, comb filter, delay, dynamics (noise gate, expander, compressor, de-esser), echo/reverb and parametric EQ. Clicking on the relevant control causes a pop-up display of the various controls to appear. Settings can also be named and stored in a library, and then recalled to other channels.

Pyramix' EQ is very powerful and sounds real sweet! The 4-band parametric EQ offers peak/dip at each center frequency, which can be swept between 20 and 20k Hz. Cut/boost adjustment is up to 20 dB, with variable bandwidth. A small screen window shows the overall response of the corresponding EQ section. Changes can be made in real time without a click or pop to upset the proceedings. A handy auto-gain compensation switch automatically adjusts the master output level of the EQ section to maintain a correct acoustical power level as the gain of each band is adjusted.

The dynamics section is also a jewel. Onscreen level controls allow all of the various settings to be adjusted, while a very handy input/output level display shows what is happening to the signal's dynamic range as various sections are bought into operation. A set of factory-provided presets are also available. Scheduled additions include DSP effects such as variable delay with regeneration, flanger, chorus, reverbs, pitch shift, time compression/expansion and digital convolution.

All in all, Pyramix offers a wide range of mixing and processing tools

that sound great. In case you haven't noticed, too many workstations can run into serious sync and timing problems if you apply lots of processing; phase delay between heavily processed tracks was never a problem with Pyramix.

At the bottom of the main screen is a Transport Control window that displays the current timecode location and offers icons for the familiar motion control tasks, plus a shuttle bar. These controls can be assigned to the Pyramix hard disk recorder, or to external transports via conventional 9-pin protocol or MIDI machine control. A large Transport control panel offers a full-function autolocator, loop parameters, playback, rehearse, go-to mark, set mark, etc., in addition to chase synchronizer settings.

HEART OF THE BEAST: THE COMPOSITION EDITOR

Space precludes me from providing anything more that a brief overview of Pyramix' very powerful editing window. The integrated suite of editing tools and views provides easy control of both the fine audio details and the overall composition structure. Suffice it to say that the display is as comprehensive and feature-packed as I have seen on any PC-based 8-track editor. The Composition Editor provides graphical editing with waveform displays, list editing, and an overview display that makes it particularly easy to navigate and work with multitrack edit sessions. (In fact, I would highly recommend that serious users opt for at least a 17-inch—or even a 20-inch—monitor, simply to enable more windows to be assigned to the screen; twin-screen operation is also possible with add-on monitor boards.)

Tracks run horizontally from left to right, with a central Now Line. Although crammed with data and waveform display, there is little clutter; it is easy to see what is happening during a project without having to delve into sub menus. All tasks can be accomplished quickly and easily by using copy, paste, slip, insert, overlay and related modes. The integrated suite of editing tools and views provides easy control of both the fine audio details and the overall project details. Open Media Framework Interchange assures compatibility with other leading audio and video workstations. At press time, V1.1 software only offered rudimentary scrub editing; by the time this review appears, V1.2 will be shipping (see sidebar) with enhanced functions. Also to be added are user-programmable forward and backward nudge functions from the keyboard, for re-aligning start and end points of clips. Zoom in and out are also provided.

The Placement Tool provides elegant control of clip placement relative to a number of programmable markers, other cues, or timecode locations. A series of color-coded keys help streamline the process of selecting a clip and relocating the designated segment. Segments can be aligned to the Head, Sync, Internal Markers, or the Tail of any clip in the composition; complete control is also provided regarding how the manipulated clip will affect existing material, via Overwrite, Splice, or Replace modes. Standard edit modes include Trim, Split, Extend, Copy, Cut, Paste, Nudge, Tab between Edit points, Loop, But-to-Selection, Lock/Unlock Tracks and Clips, plus Group/Ungroup. Up to 32 levels of Undo are provided (!), together with an Undo History.

All clips created during a project are held in a Composition Library that can be used to copy and paste clips to different locations, or to backup this data. A user library can also be created to hold material—edited music or effects tracks, for example—that might need to be shared between different projects. A suite of Media Management tools enables a variety of database, archive and backup functions. Pyramix automatically captures clip information during recording, and allows entry of user- and/or project-specific information. Media archive is to 8mm Exabyte tape, optical disk or any PC-compatible backup.

The Media Database stores preset and user-defined fields and provides custom search and sort, and setting up of custom sound libraries. An auto-incremental naming function is also provided, and marks can be set on-the-fly.

In addition to overall level control of individual clips, crossfade profiles can be applied from a menu that currently includes equal-power, linear fade and

NEW ENHANCEMENTS FOR PYRAMIX

A number of important enhancements to the basic Pyramix system are scheduled to begin shipping within the next several months. **V1.2 Pyramix Software** will include these new features:

- **AudioExpress** option that adds work group functionality to audio files, EDLs and multichannel audio projects files that can be sent and received directly within the system. As well as routine e-mail functionality, Library objects can be dragged and dropped into the mail. (Objects are automatically parsed and any recognized audio files converted to a compatible OMF format; attached audio files can be also dropped directly in any Media folder.) Multiple file formats and compression levels are supported, allowing optimization for various transmission types (LAN, WAN, Internet, etc.).
- **Cedar De-noising** in real time on Kefren DSPs.
- **Improved Crossfade editing** for classical music editing.
- **Lossless Real-time Compression** (LRC), a proprietary algorithm, which is said to allow "transparent, non-destructive" storage and retrieval of audio at data-reduction rates of 2:1 and above. (Compression/decompression of LRC files is performed in 1/20 of real time on a fast Pentium.)
- **Punch In/Out** recording directly to a Project, with low delay monitoring for recording talent.
- Support for **JLCooper MCS-3000** motorized fader remote controller.
- **Convert**, a batch-file conversion application that supports a variety of file formats, including AIFF, OMF, .WAV, AU (SND), MPEG Layer 3, and LRC (Lossless Realtime Compression) at word lengths of 8 to 24 bits. Convert is described as the first conversion program that fully supports conversion to, from and between all required OMF audio file formats (including Revisions 1.0 and 2.0). (For example, conversion of an OMF 1.0 file containing stereo interleaved .WAV audio tracks to OMF 2.0 containing two mono AIFF tracks.) Sample rate conversion (8 to 96 kHz), normalization, DC offset removal, multichannel to mono and phase-inversion are also featured.
- **Extended OMF Support**, which enables V1.2 software to import and export both OMF 1.0- and OMF 2.0-compliant media.
- **Sphynx I/O Interface**, which provides eight channels of I/O in a 2U-rack, offers 18-, 20-, and 24-bit conversion and AES/EBU input/output in any configuration. Optical connections are provided to the Pyramix workstation with remote input gain stages under software control. DVD support, 96kHz and mic preamp modules are also planned. ■

equal-dB fade-ins and fade-outs; other profiles will follow. Symmetrical and asymmetrical fades can also be set up using conventional handles on the back and front of the two clips to be crossfaded. Once established, the center point of a crossfade can also be moved across the boundary between the two segments. Each clip can be set to carry its alphanumeric name or to display a real-time waveform profile. You can also cause the system to display a waveform with or without crossfade profiles, if you need to check the levels across that segment—a nice touch that I don't recall seeing in any other workstation. The only downside is a slight reduction in screen update speed.

I was unable to test Pyramix's networking functions, which allow real-time data transfer of up to eight non-compressed audio tracks via a 100Mbit Ethernet connection. I have seen the function demonstrated at a couple of trade shows, including last fall's AES convention in L.A. and would expect it to offer a definite functional advantage for multiroom facilities. (I understand that necessary hardware to connect together five systems and a file server would cost around $1,500.)

THE BOTTOM LINE

All in all, the Pyramix offers a lot of functionality in a reliable, bullet-proof environment. Never once did the system crash nor seriously misbehave during my extended evaluation.

The lack of more than eight disk tracks might be important to some applications, but with track bouncing and flexible I/O routing, you shouldn't be too hampered. (And future software releases are scheduled to offer support of multiple Kefren boards.) The mixer and editing interfaces are very easy to understand and operate. Also, the user manual is easy to follow, with plenty of illustrations; all it lacks is a succinct summary at the beginning that spells out in simple terms the virtues of the Pyramix system.

In terms of value for money, however, I'd be happier if Pyramix offered slightly more for the investment. At just over $12,000 for a complete 16/8/2 PC-based system with real-time playback of eight tracks, it is rather expensive, given the fact that you still have to purchase a least a couple of channels of D-to-A for monitoring, if not additional A-to-D converters for handling analog sources. I understand that Merging Technologies will be offering free software upgrades to Pyramix customers for one year. But, in the plus column, you do get full 32-bit floating-point processing, which ensures full 24-bit data paths throughout the systems, and enhanced audio quality at 48 and 96kHz sampling rates. And MT has promised a PCI-compatible version of the Kefren card that, it is claimed, will offer 16-track record/replay, and multiple-card operation. (Rumor has it that the upgrade for current users will be "close to build cost.")

If the promised functionality appears in a timely fashion, with no serious hardware surprises, then Pyramix may continue to offer midrange users the power and studio-in-a-box functionality required to handle a wide range of recording and production chores.

Merging Technologies, 16835 West Bernardo Drive, Suite 101, San Diego, CA 92127; 619/675-9703; fax 619/675-2247. Web site: www.merging.com. ■

Mel Lambert currently heads up Media&Marketing, a consulting service for pro audio firms and facilities.

—FROM PAGE 142, POP AND DVD

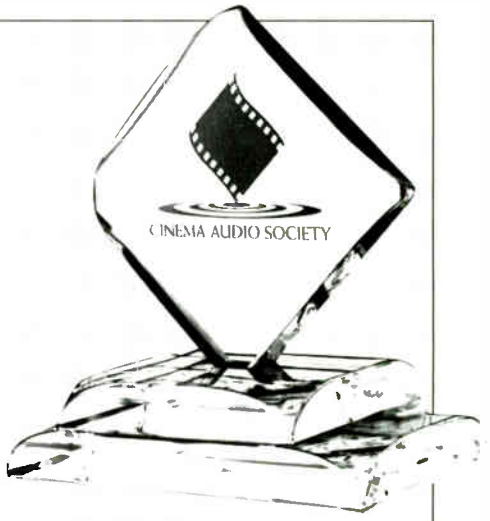
to work to get to 5.1 and have it translate into the home so that it sounds in league with film mixes. I come from a stereo music environment, and I still find myself educating myself. [When we first started with multichannel mixes], you might as well turn your back to the console and mix backwards because everyone was concerned about the surrounds. It's a new way of approaching the mix."

"What [5.1] becomes, then, is another creative decision," adds Thompson. "It's the same decision that you make as 'I want to go this way with my melody' or 'I want to go this way with my arrangement.' It's an extension of the arrangement. And just as fans might not like your musical progression, they might not like your spatial progression. Certainly quad had problems besides 'Oh, it's quad.' There were standards problems and compatibility problems and all kinds of issues. But I hope we've learned enough and grown enough aesthetically to be responsible with our technology." ■

—FROM PAGE 131, OSCAR WINNERS

Supervising Sound Editor: Bruce Stambler
Sound Effects Editors: Lance Brown, Glen Hoskinson, Steve Mann, Steve Nelson, Kim Secrist, Donald L. Warner Jr., Richard E. Yawn, Gary Mundheim, Gordon Ecker
Sound Effects Coordinators: John Michael Fanaris, Blake Marion
Dialog Editors: John Leveque, Kimberly Lowe Voigt, Marshall Winn, Mildred Latrou
Assistant Sound Editors: Jeffrey Cranford, Paul Aulicino
Supervising ADR Editor: Becky Sullivan
ADR Editor: Joe Dorn
ADR Assistants: Lori Martino, Marc Deschaine
ADR Mixer: Thomas J. O'Connell
ADR Recordist: Rick Canelli
Supervising Foley Editor: Michael Dressel
Foley Editors: Shawn Sykora, Bob Beher, Mark Pappas
Foley Mixer: Mary Jo Lang
Foley Recordist: Carolyn Tapp
Foley Artists: John B. Roesch, Hilda Hodges
Digital Effects Layback: Gary Blufer, Kelly Cabral
Dolby Stereo Consultant: Thom "Coach" Ehle
Supervising Music Editor: Ken Hall
Music Editor: Sally Boldt
Location Music Editor: Curtis Roush ■

CINEMA AUDIO SOCIETY AWARDS



The Cinema Audio Society hosted its 33rd Annual Awards banquet at the Beverly Hilton in March. Tomlinson Holman, inventor of the THX System while at Lucasfilm and currently president of TMH Corporation, was presented with the Career Achievement Award by director Andy Davis and sound designer/re-recording mixer Ben Burtt. Outstanding Sound Mixing in a motion picture went to the crew of the Miramax release *The English Patient* Mark Berger, C.A.S., Walter Murch, C.A.S., and David Parker. The film was mixed at the Saul Zaentz Film Center in Berkeley, Calif. Outstanding Sound Mixing in a television series went to the crew of *NYPD Blue*: Production mixer Joe Kenworthy, C.A.S., and re-recording mixers Ken Burton and Robert Appere, C.A.S. Not pictured are the winners for Outstanding Sound in a television mini-series or special, production mixer David Hewitt of Remote Recording Services and re-recording mixer Ken Hahn of Sync Sound for their work on "Three Tenors at Giants Stadium." ■

Tomlison Holman received the Career Achievement Award

Outstonding Achievement in Sound Editing for Television Series went to the "Unembraceable You" episode of NYPD Blue. Present to receive their awards were (left to right) production mixer Joe Kenworthy, C.A.S.; re-recording mixers Ken Burton ond Robert Appere, C.A.S.

—FROM PAGE 161, WIRELESS MICS

ing for lows and highs, improving the signal-to-noise by 10 dB over conventional companding. The UH190 ($850 list) is a plug-on XLR transmitter designed to work with virtually any low-impedance mic. Its wide-range input gain adjustment permits use with low-output mics up to moderate line-level signals. The UM190 is a body-pack transmitter with a Switchcraft TA5M connector (also $850 list). Both transmitters operate for more than seven hours on a 9-volt alkaline and can be ordered with a frequency between 470 and 608 MHz (USTV channels 14 to 36). The small UCR 190 receiver ($1,500 list) operates on 9-volt battery, 12 to 18 volts DC or with the supplied AC adapter, and it has a headphone jack. Lectrosonics' Web site (www.lectro.com) has some very helpful information, and anyone interested can download the company's "Wireless Guide" white paper or get a hard copy. The chapter on interpreting specs is most illuminating.

Nady Systems (Emeryville, Calif.; www.nadywireless.com) has two low-cost UHF systems. The RW-3 (around

Nady 301 fixed-frequency receiver

$1,100 list for a complete system, depending on transmitter options) is a four-frequency adjustable, rackmount UHF receiver. It has balanced XLR and unbalanced ¼-inch output connections. The 301 is a fixed-frequency receiver (around $900 list) that is not rackmountable and only has an unbalanced output; both receivers run on a supplied AC adapter. Both systems operate on one of four frequencies in the 800 to 806MHz band (USTV channel 69). The LT-50 body-pack and HT-50 handheld transmitters used with both receivers are adjustable to one of four frequencies and operate over six hours on a 9-volt alkaline. The Nady DM-65 dynamic mic element comes standard on the handheld, with Shure's 58, or EV's 857 as an option for $169 additional.

Samson (Syosset, N.Y.) confirmed at press time that it is introducing a new low-cost UHF diversity system this fall. Tentatively called Series One, it will operate in the 800MHz band using PLL circuitry. The receiver will have a multisegment front panel RF meter, squelch control and operate on at least one of six frequencies. List price for systems will be well under $1,000—how much depending, of course, on choice of transmitter and mic element. A prototype was shown at winter NAMM in Anaheim, and interested users can check it out at the summer NAMM show in Nashville.

Sennheiser (Old Lyme, Conn.; www.sennheiserusa.com) introduced the 1000 Series frequency-agile PLL di-

Sennheiser SET 1081/1083

versity UHF system (about $2,000) last year. It uses the same HiDyn Plus noise reduction found in the high-end 5000 Series Sennheiser wireless systems. The U.S. version operates on one of 16 frequencies between 674 and 698 MHz (TV channels 48 through 51), and up to eight channels can be used simultaneously. The receiver's half-rack chassis has displays for RF level, audio deviation and diversity indication. The BF 1081's handheld transmitter has a dynamic supercardioid capsule. It's made of a glass-composite material, has an integral antenna and runs on a 9-volt alkaline for more than six hours. The BF 1083 is a body-pack version of the system with an MKE-2 omnidirectional electret condenser lavalier.

Shure (Evanston, Ill.; www.shure.com) released its frequency-agile UHF wireless system more than a year ago. Capable of selecting from 188 frequencies in the 782 to 806MHz range (TV channels 66-69), up to 20 systems can be operated at once. The microprocessor-controlled receivers and transmitters have LCD screens for setup, information and control. In addition to a battery gauge on each transmitter, there is also a remote battery meter on the receiver. Typical life from two AA alkaline batteries is 12 hours. The single-rackspace receivers are available as single- or dual-channel units. There is RF and audio metering on the receiver, plus a headphone output. The receiver incorporates a universal switching power

Shure UHF wireless system

supply, allowing it to operate on any international voltage. Handheld mic element choices include the Beta 87 condenser and the new Beta 58A dynamic, as well as the old, familiar SM versions of these capsules. Single-channel handheld systems list from $2,390 to $2,590 depending on the choice of capsule. Similarly priced body-pack systems with Tini Q-G connectors are compatible with a variety of Shure's lavalier and headset mics. "Intro to Wireless Mics" (AL#1204) by Chris Lyons is available in both English and Spanish from Shure's literature department, and "Selection and Operation" (AL#1247) by Tim Vear builds on the introduction.

Sony (Oradell, N.J.) introduced a low-cost UHF system at the Winter NAMM show, but its availability has been pushed back to the third quarter of 1997. It will be compatible with the company's previous 800 Series high-performance broadcast system, like the WRT-830 electret condenser handheld transmitter ($1,350) or the WRT-867A dynamic ($2,125), and the new system will operate from 794 to 806 MHz (USTV channels 68 and 69). The new WRT-800A handheld transmitter has a cardioid electret condenser element and will run for up to 12 hours on a single AA battery. With the new WRR-800A half-rack stand-alone receiver, early guesses were that a system would list for around $1,200. A single receiver will also be available as the WRR-801A, in a rackmount bay that can hold five more receivers, for a total of six. The system is designed for simultaneous operation of six units, or with Sony's WD-880A channel multiplier, 11 can be run at once. The receiver has a 10dB attenuation switch and both XLR and ¼-inch output connections. The WRT-805A body-pack is the other transmitter option. One feature is an auto-assignment mode that checks for, and skips, unusable frequencies and coordinates with other receivers in the system.

Telex (Minneapolis, Minn.; www.telex.com) also introduced its new 450

UHF wireless microphone system at Winter NAMM. The FMR-450 receiver is a half-rack design with 5-segment RF and audio metering. It is sold as a system ($1,605 list) with the HT-450 handheld transmitter. Besides the Telex 65 ELE condenser element, there is a choice of EV or Audix dynamic elements. It is also available with the WT-450 body-pack and a lapel mic ($1,525). Battery life is more than eight hours for the handheld and up to 12 hours for the body-pack on a 9-volt alkaline battery. The system operates between 524 and 746 MHz (USTV 23 to 59), and up to 50 systems can be run at once under optimal conditions.

Telex's new ProStar UHF Series Wireless Microphone system, $370 (also introduced at Winter NAMM), is claimed

Telex FMR-450 UHF wireless microphone system

to offer power and quality beyond any other system in its price range. The ProStar UHF system occupies the 690 to 725 RF carrier frequency range with a frequency range of 50 to 15,000 Hz (systems are available in eight different stock frequencies and Telex will provide frequency coordination assistance). Frequency stability measures .005 percent with an unweighted signal-to-noise ratio of 91 dB with less than 0.5 percent third harmonic distortion. Ultimate quieting (ref. 12 kHz Dev.) measures 97 dB. Both lapel and handheld microphones are available and the handheld versions offer the choice of a condenser or a dynamic microphone. The system is also optimized for guitar applications and features specially tuned circuitry to enhance frequency response and attack characteristics. The ProStar receiving unit is housed in a rugged, half-rack-space plastic case; a rack tray is available to accommodate two units. ■

Mark Frink is Mix*'s sound reinforcement editor.*

—FROM PAGE 147, ASLEEP AT THE WHEEL

played by AATW founding member Lucky Oceans, and on the electric piano.

For acoustic piano, Kircher chose a pair of AKG 451s, along with a Barcus-Berry 4000 Concert Strings piano pickup. "You can get a great piano sound with the 451s, but at the level the band plays at, I rely on the BBE pickup to get the piano into the mix where I need it," Kircher notes. "Ryan Smith and Mark Brunner at Shure Brothers were nice enough to upgrade our vocal mics to their Beta 87," he adds. "They have great low-end response that works really well on Ray's vocal."

Gear used for inserts included Drawmer DL-241 compressors on Benson's lead vocal and other vocals, and Aphex Expressors for the four steel inputs and two bass guitar inputs. Kircher assigned Aphex 9621 gates to kick drum and toms, and Aphex 651 compressors to the drums and horns subgroups.

Tracy Killebrew is Asleep at the Wheel's monitor engineer. Assisted by Jeff Tucker from BHS, Killebrew used a Yamaha PM-3500M to create ten mixes, which were distributed via BSS FCS-960 EQs and Crown Macro 24x6 amps to 15 wedges scattered around the stage. Except for a dual-15 for the drummer, the floor monitors were all proprietary BHS-designed units, JBL-loaded with a single 12.

The main speaker system consisted of two Adamson Acoustic MH-225 mid-high cabinets and three Adamson B-218 subs flown on each side of the stage. Big House also placed a pair of BHS-1202s with a single JBL 2206 and an Electro-Voice DH-1A 2-inch on each corner of the stage.

The house system was powered by two amp racks, each containing a Crown Macro 5000 amp, two Crown Macro 2400s and a Crown Macro 24x6 used for front fills. Big House uses the BSS Omnidrive for processing, along with a BSS Vari-Curve (with remote control) to handle EQ. There was also a BSS 960 graphic equalizer and BSS 402 compressor in line to help fine-tune the system, which, Kircher points out, actually didn't need much fine-tuning, and an Audio Control Industrial SA-3050A analyzer.

"Asleep at the Wheel encounters a lot of different systems on the road, and most are EQ'd with a lot of low end," notes Kircher. "So I go in and pretty much analyze them flat, and then I play a disc though it and adjust the high end a little. If you have a good system set up and EQ it right, with good tone coming off the stage, you shouldn't need much if any EQ on the console.

"Because we were also shooting a video on this show, the stage had to be extended eight feet, which was great for the video, but it put the front vocal mics six feet in front of the main speaker cluster," Kircher says. He used a BSS FDS-388 Omnidrive to correct time alignment problems due to the fact that the vocal mics were in front of the main clusters, while the front fills were slightly ahead of the vocal mics.

Benson's Bismeaux Studios recorded the show on five Alesis ADATs, processing the signals through Ray Benson's impressive collection of mic preamps, which includes a Tube-Tech, four Dakings, two Tridents, two Jensens, two Sontecs, two Summits and two Drawmers. Eight more preamps, which were custom-built by Bismeaux Studios, are made up of modified components from old RCA radio mixing boards. Marcus Sorenson of Mackie Designs was able to deliver a 32-channel, 8-bus desk with a meter bridge and an SR 32•4 desk to monitor the recording in a room near the stage where the recording equipment was set up. A third Mackie console was used to augment the mic preamps.

Larry Seyer engineered, as he has on all of AATW's recent recordings. Both the Events and the Mackies were flawless in their performance," he says. "They provided what one needs in a recording environment: clean, clear and dependable monitoring and mixing."

The mic split was taken care of by ten BSS MSR-604 IIs with two power supplies. "I called Paul Freudenberg, national sales manager for BSS," says Kircher, "and explained to him what we were doing, and he was more than willing to help us out with the mic splits. They worked great. What I really noticed was the way the BSS put the tones right in your face."

On the recording end, Seyer had similar feelings. "The great thing about having the BSS splitter there was that we were able to have a completely independent feed from the FOH," he says. "The additional gain provided by the unit helped us with the noise-to-signal ratio while we were recording."

All three nights came off without a hitch and sounded great, thanks to Big House Sound's expertise. And though nothing's ever quite like being there, Asleep at the Wheel's new live album is out now and it's a testament to the quality of the sound on these shows. ■

PRO CASSETTE DECKS

TASCAM

202 MKIII / 302

Provides high-fidelity sound reproduction and a wide frequency response, as well as a host of features to help you easily dub, edit, record or playback using 1 or2 cassettes.

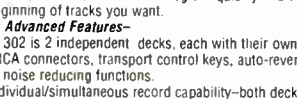
- Dual Auto Reverse, Normal and high-speed dubbing.
- 4-second autospacer.
- "Dolby HX Pro" extends high frequency performance and minimizes distortion.
- Auto sensing forNormal, Metal and CrD2 tape.
- Functions like Intro Check, Computerized Program Search, Blank Scan and One Program quickly find the beginning of tracks you want.

302 *Advanced Features–*

The 302 is 2 independent decks, each with their own set of RCA connectors, transport control keys, auto-reverse, and noise reducing functions.

- Individual/simultaneous record capability–both decks
- Cascade and Control I/D let you link up to 10 additional machines for multiple dubbing or long record and playback.

112MKII/112RMKII



A classic "no frills" production workhorse, the 112 MK II is a 2-head, cost effective deck for musicians and production studios. Extremely rugged and reliable, the 112 MK II is ideal for production mastering and mixdown. It also features a parallel port for external control and an optional balanced connector kit means it is flexible enough to integrate into any production studio.

112R MKII *Advanced Features–*

- Three-head transport with separate high-performance record and playback heads.
- Precision FG servo direct drive capstan motors.
- Hysteresis Tension Servo Control (HTSC)VIRTUALLY eliminates wow and flutter by maintaining consistent back tension on the tape all through the reel.
- Auto Reverse mode plays or records in both directions.
- Continuous Reverse mode allows you to loop the tape during playback up to 5 times, or record in both directions.

HEADPHONES

AKG

K240M

The first headphone of choice in the recording industry. A highly accurate dynamic transducer and an acoustically tuned venting structure produce a naturally open sound.

- Integrated semi-open air design.
- Circumaural pads for long sessions.
- Steel cable, self-adjusting headband.
- 15Hz–20kHz, 600Ω

JUST IN

SENNHEISER

HD 265/HD580

The **HD-265** is a closed dynamic stereo HiFi/professional headphone offering high level background noise attenuation for domestic listening and professional monitoring applications.

The **HD 580** is a top class open dynamic stereo HiFi/professional headphone that can be connected directly to DAT, DCC, CD and other pro players. The advanced design of the diaphragm avoids resonant frequenciesmaking it an ideal choice for the professional recording engineer.

marantz

CDR615 / CDR620 Compact Disc Recorder

Both next-generation stand-alone write-once CD recorders they offer built-in sample rate conversion, CD/DAT/MD/DCC subcode conversion, and adjustable dB level sensing. Additional features include adjustable fade in/fade out, record mute time, and analog level automatic track incrementing. A 9-pin parallel (GPI) port and headphone output with level control are also included.

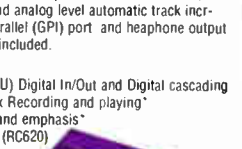
CDR620 *Additional Features–*

- SCSI-II Port • XLR (AES/EBU) Digital In/Out and Digital cascading
- 2x speed recording • Index Recording and playing*
- Defeatable copy prohibit and emphasis*
- 34 key, 2-way wired remote (RC620)

*Available on CDR615 w/optional Wired Remote (RC620)

PMD Series

Portable Professional Cassette Recorders



The world standard for field recording, the PMD line is also the value leader. They all feature RCA line input/outputs, 1/4-inch headphone jack, built-in speaker, pause control, audible cue and review, tape counter, full auto shut-off and low battery indicator.

- All models except the PMD-430 have 1/2 speed playback/record capability. With 1/2 speed playback, musicians can slow down complicated passages for analysis. At 1/2 speed the pitch is lowered by exactly one octave so the notes are still musically correct.
- By recording at 1/2 speed, a three hour meeting can be recorded on a single tape. A built-in mic and automatic level control make operation simple, and built-in speaker makes transcription convenient.
- Three standard 'D' cell batteries provide up to 7-1/2 hours of operation and the optional RB430 rechargeable battery delivers up to 5-1/2 hours.

General	PMD-101	PMD-201	PMD-221	PMD-222	PMD-430
Stereo/Mono	Mono	Mono	Mono	Mono	Stereo
Heads	2	2	3	3	3
Inputs/Outputs					
Mic Input	1/4-inch	Miniplug	Miniplug	Mini/XLR	1/4-inch
Condenser Mic	Built-In	Built-In	Built-In	Built-In	—
Remote Jack	—	Yes	Yes	Yes	—
Modular Tel Jack	—	Yes	Yes	Yes	—
External Speaker Jack	—	Yes	Yes	Yes	—
Record Controls					
VU Meters	—	1	1	1	2 (Illuminated)
2-Speed Recording	Yes	Yes	Yes	Yes	—
Dolby B NR+dbx NR	—	—	—	—	Yes
Mic Attenuator	—	0,-10dB, -20dB	0,-10dB, -20dB	0,-10dB, -20dB	0,-15dB, -30dB
Ambient Noise Cont.	—	Yes	Yes	Yes	—
MPX Filter	—	—	—	—	Yes
Manual Level Control	—	Yes	Yes	Yes	—
Limiter	—	Yes	Yes	Yes	Yes
ALC	Yes	Yes	Yes	Yes	—
Peak Indicator	—	—	Yes	Yes	—
Playback Controls					
Pitch Control	±20%	±20%	±20%	±20%	±6%
Bias Fine Adj	—	—	—	—	Yes
Tone Control	Yes	Yes	Yes	Yes	—
Memory Rewind	—	—	Yes	Yes	Yes

Telex

ACC2000/4000 Cassette Duplicators

Designed for high performance and high production, Telex duplicators offer easy maintenance and operation. The ACC2000 is a 2-channel monaural duplicator, the ACC4000 is a 4-channel stereo duplicator. Each produces 3 copies from a cassette master at 16X normal speed and with additional copy modules you can duplicate up to 27 copies of a C-60 original in ***under two minutes.*** And they copy both sides at once!

ACC2000XL / ACC4000XL

The XL Series feature "Extended Life" cassette heads for increased performance and wear characteristics.They also offer improvements in wow and flutter, frequency response, S/N ratio and bias.

Easy Maintenance:

- Slanted work surface and "heads-up" cassette platform prevent oxide build up on the heads and makes cassette loading and unloading easier.
- 3 point tape guidance system eliminates skew problems and prevent unnecessary wear and tear on the tape head mechanism.
- Audio and bias along with head adjustments are made easily from the top of the unit. A switch on the back engages the head and pinch roller for convenient cleaning.

Fingertip Operation

- Individual rotary audio level controls, 'Peak' LED indicators
- Side A or A/B select button
- Stop all tapes instantly, at any point during the copy or rewind cycle.
- Short tape indicators alert you if a tape stops before the original does, identifying incomplete copies caused by jam or short.
- Automatic or manual selection of rewind and copy operation:
  –Rewinds tapes to the beginning or end automatically (AUTO mode) or manually.
  –In AUTO mode the copy button activates the entire rewind/copy/rewind sequence. In manual mode, it starts copying immediately.

Telex Copyette EH Series Duplicators

The Copyette series produce high quality, low cost cassettes in large quantities at approximately 16X normal speed. The 2 versions are capable of duplicating either 1 or 3 cassettes at a time. Available in both mono and stereo.

Stereo Copyette 1•2•1

Weighing only 8 lbs. (3.6 kg), this unit has a durable, impact resistant housing and includes a removable power cord, carrying handle and protective cover. Optical, non-reflective end-of -tape sensing system provides gentle tape handling.

Stereo Copyette 1•2•3

This duplicator copies both sides of three cassettes at once, yet it's as small as the 1•2•1. It weighs only 12 pounds (5.4 kg) and includes a hard cover to protect the unit while not in use. It uses all DC Servo motors for the ultimate in reliability.

MICROPHONES

AKG

C414B/ULS

A reputation for flawless performance and uncommon flexibility in the most demanding studio and concert sound applications.

- Dual 1" Gold-sputtered diaphrams.
- Flat on-axis response.
- 126dB dynamic range.
- Switchable 10dB and 20dB pad.
- 20Hz–20kHz.

JUST IN

CAD

Studio Condenser Mics

The "bench mark" for cost and performance, the Equitek series of microphones incorporate a unique servo design and exceptional flexibility to provide extraordinary ballistic capability and exceptional transient response.

E-300

A multi-patterned side address mic that combines vintage capsule design with advanced head-amp electronics, the E-300 has an unusually wide frequency response of 10 Hz to 20 kHz and an exceptional dynamic range of 137 dB. Also extremely low self noise of 11dB. Ideal for the most critical applications.

Shown wi optional ZM-1 Shockmou

Unique powering of all mics is accomplished with a pair of rechargeable nicad 9-volt batteries in combination with 48-volt phantom power. This overcomes inherent current limiting associated with most phantom power supplies and can supply 10X the current.

E-200/E-100

The first member of the Equitek family, the **E-200** is als a dual capsule side address multi-pattern condenser m but with lower specifications than the E-300. The **E-10** uses the same electronics as the E-200, but with only one of the same capsules in a supercardioid pattern.

- Frequency response of 10 Hz to 18 kHz.
- Dynamic range of 137 dB • Low self noise of 16 dB.

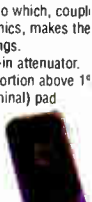
audio-technica

AT4033

Cardioid Capacitor Microphone

The AT4033 is a transformerless, studio microphone designed for use in the most demanding applications.

- Gold-plated, "aged-diaphragm" condenser element wit internal baffle plate to increase S/N ratio which, coupl with low-noise transformerless electronics, makes the AT4033 ideal for critical digital recordings.
- Dynamic range is 123 dB without built-in attenuator.
- Accepts up to 140 dB SPL without distortion above 1 T.H.D. A built-in switchable 10 dB (nominal) pad increases it to 150 dB.
- Internal open-cell foam windscreen.
- Integral 80 Hz hi-pass filter for easy switching from a flat frequency response to a low-end roll-off.



AT4050/CM5

The AT4050 multi-pattern condenser expands upon the AT4033 to set the standard for studio performance mics.

- 2 capacitor elements.
- Cardioid, Omnidirectional, and Figure 8 polar pattern settings.
- Vapor-deposits of pure gold on specially-contoured large diaphragms are aged through 5 steps to ensu optimum characteristics over years of use. Transformerless circuitry results in exceptional tran sient response and clean output even under extrem ly high SPL conditions.

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PROCESSING

BEHRINGER

MDX 1200 Autocom

ttack/Release times, with Intelligent Program etection.
oise gate, switchable Soft Knee/Hard Knee char- cteristics for varied sound pressure levels.
right, illuminated LEDs show gain reduction.

MDX 2100 Composer

tegrated auto/manual compressor, expander & peak niter.
ompresses "musically" in dynamic range without any udible "pumping" or "breathing".
tack & release times are controlled automatically or anually.
teractive Gain Control (IGC) combines a clipper and ak limiter for distortion-free limitation on signal peaks.
rvo-balanced inputs and outputs are switchable tween +4dB and -10dB.

APHEX

107 Tubessence
2 Channel Mic Preamp

107 delivers outstanding sonic performance, as well a great degree of presence, detail, openness and ge.
independent channels with front panel XLR inputs
p to 64dB of gain available
0dB pad with red LED indicator, 2 LED input meter
ll 48V phantom power with red LED indicator
ow cut filter with red LED indicator: 80Hz, 2dB/octave
olarity inversion switch with LED indicator
ndividual channel remote mute capability
witchable +4dB/-10dB output with 1/4" TRS phone cks

BESSENCE combines the best attributes of both tube d solid state circuitry to provide performance matched by conventional designs. The solid state nt end is transformerless and only high end capaci- s are used in the signal path. The tube circuit parts the sonic characteristics of tubes without the tremely high voltages, heat, fragility, and short life an of conventional tube circuitry.

109 Tubessence
Parametric EQ

Aphex 109 is an extremely versatile and high perfor- nce parametric vacuum tube EQ with unique features, ibility and sound.
reat for "warming up" digital signals.
ue tube circuitry in the output stage.
ual (stereo) 2 band or mono 4 band EQ configuration fers flexibility from general sweetening to critical oblem solving.
perates in the EQ flat mode yet still passes signal rough the Tubessence vacuum tube stage.
5 octave to 2 octave bandwidth adjustment.
witchable -10dBV/+4dBu operating level.

t.c.electronics

Wizard M2000
Studio Effects Processor

M2000 features a "Dual Engine" architecture that mits multiple effects and 6 different routing modes. ere are 250 factory programs including reverb, pitch ay, chorus, flange, phase, EQ, de-essing, compres- n, limiting, expansion, gating and stereo enhance- nt. The M2000 also features 20-bit A/D conversion, S/EBU and S/PDIF digital inputs/outputs, "Wizard" p menus, 16-bit dithering tools, Tap and MIDI tempo ides and single page parameter editing.

HIGH-END MIC PRE-AMPS

Focusrite

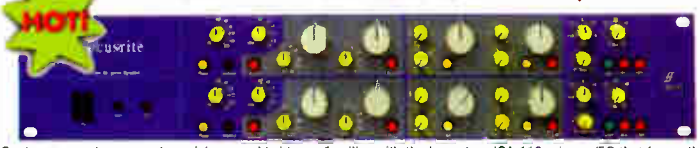
Red 1 / Red 8 Mic Pre-amps

The Focusrite Red Series is instantly recognized by leading engineers worldwide for its fidelity, musicality, precision and control. The Red1 is a 4 channel mic pre while the Red 8 has 2 channels. Both are ultra-high quality for use in digital recordings and with high-quality ribbon, valve, and condenser microphones.

Each channel offers–
- Phantom power & Phase reverse.
- Warm, and crystal-clear.
- Easy-to-read, accurate illuminated VU meters.
- Low noise floor with high gain bandwidth.
- Mic gain has 66dB range.

HOT!

ISA 215 Dual Mono Mic-Pre & EQ



Engineers, producers, and musicians worldwide are familiar with the legendary ISA 110 mic pre/EQ that forms the heart of the Focusrite Studio Console. Frequent requests for a 19" rack unit with the same circuitry have led to the development of this high-quality studio device.
- 2-independant mic pre-amp & EQ.
- Microphone inputs feature variable gain and switchable phantom power.
- Independant HF and LF shelving sections.
- Overlapping Upper and Lower Mid EQ w/variable bandwidth.
- Independant High and Low pass filters.
- Integrated PSU
- Large, easy to use control knobs and switches.

Focusrite Green Range
NOW AVAILABLE!

ALESIS

3630 Compressor RMS/Peak 2Ch.Comp/Limiter/Gate

The 3630 is a dual-channel compressor that offers Ratio, Threshold, Attack and Decay controls to handle the toughest signals. It also offers a choice between RMS and Peak compression styles, plus Hard and Soft Knee dynamic curves for every application from subtle gain control to in-your-face punch. Ideal for use in applications from studio recording and mixing to live sound reinforcement and broadcast.

M-EQ 230 Dual 1/3 Octave/Precision Equalizer

Used extensively in recording studios since 1989, the M-EQ 230 provides 2 independent 30-band 1/3 octave graphic EQ's in a single rack space. Covering every band from 25 Hz to 20 kHz in 1/3 octave increments the M-EQ 230 is ideal for tuning the monitors in your project studio or even getting the most out of a home stereo setup.

MidiVerb 4 2 Ch. Parallel Processor w/Auto Level Sensing

The MidiVerb 4 extends Alesis' line of affordable professional multi-effects processing. It provides the sonic quality and programming power required for studio recording and live sound reinforcement at an affordable price.
- Wide variety of dense, natural-sounding reverbs, rich chorus and flange, versatile delay, rotating speaker simulation, pitch shift, panning and more.
- Auto Level Sensing feature automatically sets your input signal to the optimum level to take advantage of the MidiVerb 4's wide dynamic range.
- 18-bit oversampling digital converters add to the excellent audio fidelity, with a resulting 20 kHz frequency response and a dynamic range over 90dB.
- 128 preset and 128 user-editable programs.
- Mono or Stereo single effects, dual-mono effects, and multi-chain configurations for 2 or 3 effects at once.

QuadraVerb 2 2 Ch. Master Effects w/Digital I/O

Alesis' most powerful signal processor, the QuadraVerb 2 offers the amazing audio fidelity of a high-end dedicated vocal reverb while providing powerful multi-effects capabilities.
- 300 programs (100 preset and 200 user-editable).
- Octal Processing allows use of up to 8 effects simultaneously in any order. Choose between over 50 different effects types for each block, including reverb, delay, chorus, flange, rotary speaker, pitch shift, graphic and parametric EQ, overdriver and more.
- 5 seconds sampling, triggerd pan, and surround sound encoding are also built in.
- Selectable -10 dB and +4dB levels, servo-balanced TRS inputs and outputs.
- ADAT Digital Interface allows you to work entirely in the digital between the Q2 and an ADAT XT.

MIDI

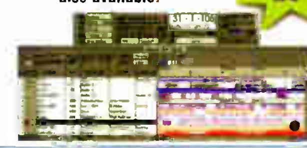
OPCODE

Studio 5 LX
Macintosh MIDI Interface

The Studio 5 LX is arguably the most advanced MIDI interface on the market today. It incorporates a MIDI patchbay, MIDI processor, and SMPTE synchronizer with it's interface functions, all in a 2 rack space unit.
- 15 Independant MIDI ins and outs.
- SMPTE reads and writes all formats– 24, 25/29.97/29.97DF/and 30.
- Network multiple units, 240 MIDI channels each.
- 128 patches, unlimited virtual instrument controls.
- 2 assignable footswitch inputs, 1 controller input.
- 8X speed when used with OMS.
- Internal power supply.

Studio 3 & 4 MIDI interfaces, and Vision sequncing software also available.

JUST IN



Mark of the Unicorn products now available.

PROCESSING

HOT!

White instruments

4200A, 4400 & 4700
L-C Series 1/3 Octave Active Equalizers

- The 4200A (active, cut only graphic EQ) and 4400 (active graphic EQ) provide 28 1/3-octave filters on I.S.O. centers from 31.5 Hz to 16kHz. Hand-tuned inductor/capacitor (L-C) resonant circuits provide the ultimate in performance and reliability.
- Better than 108 dB signal-to-noise ratio with no degradation even when filters are used.
- Continuously adjustable high and low-pass filters bandlimit unwanted subsonic and ultrasonic noise.
- 3 outputs and powered accessory crossover socket facilitate distribution and level control to three subsystems. (Bi-amp or tri-amp operation with optional 2-way and 3-way plug-in crossover networks.
- The 4200A has a -15 dB control range, the 4400 has a ±10 control range.

The **4700** is similar in specifications to the 4200A/4400 EQs, the difference is that all functions of the 4700 are digitally controlled.

DSP 5024
Digital Signal Processor

- 2 input, 4 output signal processor with 107 dB of dynamic range.
- Crossover can be configured as 2-way, 3-way, 4-way or dual 2-way.
- Adjustments can be performed in frequency 1Hz steps, slope (6, 12, 18, 24 dB/oct.), shape (Butterworth, Bessel, Linkwitz-Riley).
- Parametric filters include boost, cut, high pass, low pass, rising shelf and falling shelf, adjustable in 1 Hz steps, 1/10 dB steps and bandwidth from 1/70th octave to 4.8 octaves.
- Delay up to 680 ms on each output.
- Ten non-volatile memories and presets with password security.
- Remote preset select interface includes PA422.

SEVEN DAY CUSTOMER SATISFACTION GUARANTEE
CIRCLE AD NUMBER ON PRODUCT INFO CARD

STUDIO MONITORS

JBL Control 5
Compact Control Monitor Loudspeaker

The Control 5 is a high performance, wide range control monitor for use as the primary sound source in a variety of applications. It's smooth, extended frequency response combines with wide dynamic capability to provide acoustic performance that's ideal for recording studios, A/V control rooms & remote trucks

- 6-1/2" low frequency driver provides solid, powerful bass response to 50 Hz and a pure titanium 1" dome handles high frequency response to 20 kHz.
- Magnetically shielded for use near video monitors.
- Choice of black, gray or white finish.
- A host of mounting systems including ceiling, rack and tripod allow positioning in exactly the right spot.

4200 Series
Near-Field Monitors

The 4200 Series near field monitors come in 6.5"(4206) and the 8" (4208). Both offer exceptional sonic performance, setting the standard for today's multi-purpose studio environment.

- Multi-Radial baffle directs the axial output for optimum summing at approximately 3 to 5 ft.
- Curved surface of the ABS baffle virtually eliminates baffle diffraction distortion.
- Superb imaging and greatly reduced phase distortion.
- Vertical alignment of the transducers across the baffle center produces natural mirror-imaging.
- Pure titanium diaphragm high frequency transducer provides smooth, extended response.
- Magnetically shielded for use near video monitors.

6208
Near-Field Monitors

An internally bi-amplified near field studio monitor, the 6208 provides excellent reference in a small, portable package. It combines optimized electronics with an 8", two-way speaker system on a Multi-Radial baffle that aligns acoustic centers of high and low frequency transducers. The transducers are magnetically shielded to allow safe placement near sensitive equipment such as tape recorders and video monitors.

- XLR or 1/4" inputs are compatible with both -10 dbV and +4 dBu nominal operating levels.
- 2.6 kHz electronic crossover with discrete circuitry.
- Low feedback design, with no slew rate limiting and extremely low distortion.
- 8", low frequency transducer delivers a long, linear excursion resulting in a smooth extended bass output with low power compression. It is coupled to a one inch titanium diaphragm, high frequency transducer with patented "diamond pattern surround" exhibiting flat response, +/-2 db from crossover point to 20 kHz.

MIXING BOARDS

BEHRINGER EURODESK MX 8000
24 Channel 8-bus Console

- 48 input channels with dedicated EQ, Mute, Pan, & Level.
- Channel, Subgroup, and Mix insert points.
- Direct Outputs, 24 balanced tape ins/outs.
- 4 band EQ with sweeps.
- 6 Aux sends, 6 stereo Aux returns w/extensive routing.
- Optional **M8-8000** Meter-bridge.
- Optional Cybermix automation software for Windows.

MACKIE CR-1604 VLZ
16-Channel Mic/Line Mixer

A hands-down choice for many major touring groups and studio session players as well as broadcast and sound contracting. The CR-1604 VLZ features everything you would expect from a larger console, and then some!

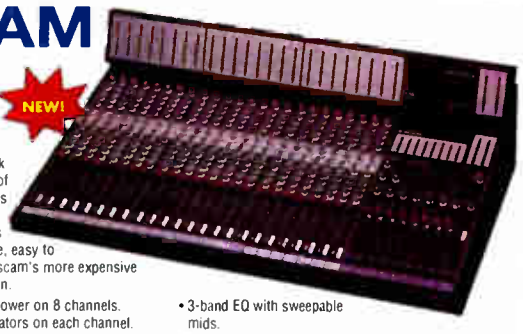
- 24 line, 7 AUX, 3-band EQ w/ mid sweep, 10-segment LED output meter.
- 90 dB S/N and 108 dB dynamic range.
- 16 studio-grade, phantom powered mic preamps.
- AFL/PFL solo & mute w/ overload and signal indicators.
- Rear panel features 1/4-inch/ XLR connectors, inserts on every channel, and RCA tape inputs/outputs.
- Rotary I/D "pod" allows3 different positions for set-up.

MS1202VLZ and MS1402VLZ *IN STOCK!*

The new MS-1202, 1402 and 1604 all include VLZ (Very Low Impedance) circuitry at critical signal path points. Developed for Mackie's acclaimed 8•Bus console series, VLZ effectively reduces thermal noise and minimizes crosstalk by raising current and decreasing resistance.

TASCAM M-1600
16/24 Channel 8-bus Console

NEW!



Great for modular Digital Multitrack setups and hard disk recording, the M-1600 is part of Tascam's next generation series of recording consoles. It features multiple option for inputs and outputs and uses the same, easy to install D-sub connectors as Tascam's more expensive console, all in a compact design.

- XLR Mic inputs w/phantom power on 8 channels.
- Signal present/overload indicators on each channel.
- Balanced/Unbalanced tape returns and Balanced Group/Direct outputs using D-sub connectors.
- TRS Balanced Line Inputs on all channels.
- 3-band EQ with sweepable mids.
- 5 Aux sends (1 stereo)
- 4 assingable aux returns.
- Perfect for use with DA-88 and ADAT setups.

Digital Multi-Track Recorders

TASCAM DA-88

- Hi-8mm tape format.
- ATF system ensures no tracking errors or synchronization loss on up to 16 cascaded decks.
- 16-bit D/A, selectable 44.1 or 48KHz .
- Flat 20Hz to 20KHz, 92dB dynamic range
- Seamless Punch-in and out, for programmable digital crossfade and insert.
- Individual track delay for special effects and timing correction.

SONY PCM-800 Digital 8-Track In Stock!

ALESIS adat xt
S-VHS DIGITAL

The ADAT-XT sets the standard in modular digital multitrack recording. The ADAT-XT operates up to four times faster than the original ADAT and offers an intelligent software-controlled tape transport as well as provides onboard digital editing and flexible autolocation.

- Includes LRC remote control with transport and locate functions
- Advanced transport software continuously monitors autolocation performance.
- 56-pin ELCD connector operates at +4dB and -10dB
- Built-in electronic patchbay
- Flawless copy/paste digital edits between machines or within a single unit.

STUDIO MONITORS

ALESIS Monitor 1
Near Field Reference Monitors

- 6.5" low frequency driver provides excellent image a transient reproduction, powerful bass, and smooth, extended high frequency detail.
- Exclusive SuperPort speaker venting technology elim nates the "choking" effect of port turbulence for solic high-power bass transients and extended low freque cy response.

Monitor Two
Mid Field Studio Reference Monitor

Today's popular music demands more bass at louder volumes than a small near field monitor can possibly produce, the Monitor 2 delivers.

- 10" three way speaker design with a unique asymmetrical crossover maintain the same accurate tonal balance and imaging of the Monitor One—but with a much larger sound fiel
- 5" mid frequency driver offers exceptional mid frequency detail
- 1" silk dome high frequency driver delivers a broad b natural frequency response from 40Hz to 18kHz.
- Covered in a non-slip rubber finish, the Monitor Two comes in a mirror imaged pair for mixing accuracy.

Point Seven

NEW PRODUCT

- Shielded reference monitor.
- Front ported venting system for great bass response.
- 50 watts RMS– 100 watts peak @ 4Ω.
- 85Hz–27kHz, ±3dB.
- 2kHz crossover for accurate phase and a wide "sweet spot" for mixing.
- Accurate flat sound reproduction.
- Great for studio and multimedia applications.

TANNOY PBM Series II
Near-field Reference Monitors

The PBM II Series is the industry standard for referenc monitors providing true dynamic capability and real world accuracy.

PBM 5 II

- Custom 5" injection-molded bass driver
- Woofer blends seamlessly with the 3/4" polymide so dome ferro-fluid cooled tweeter providing extended bandwidth

PBM 6.5 II

- 6.5" lowfrequency driver and 3/4" tweeter
- Fully radiused and ported cabinet design reduces res nance and diffraction while providing deep linear extended bass.

PBM 8 II

- High tech 1" soft dome tweeter and 8" driver capable of powerful bass extension under high SPL demands
- Hard wired crossover features true bi-wire capability.
- Full cross-braced matrix medite structure virtually eliminates cabinet resonance as a factor.
- Ensures precise low frequency tuning by incorporatir a large diameter port featuring laminar air flow at hig er port velocities.

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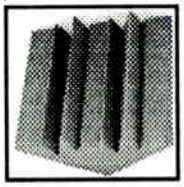
LENRD™ BASS TRAPS
Room boundaries, especially where two walls come together and meet the ceiling, can boost the apparent amount of bass in your room by 9dB! This is one of the reasons the "million dollar room guys" build studios out of square and install lots of bass trapping. Trouble is, most of us don't have the floor space or money to do it the way they do. The perfect solution? **LENRD Bass Traps** from Auralex! They're unbelievably effective, easy to install, super affordable (you get 16 lineal feet of LENRDs for under $200 delivered!) & in stock for immediate shipping. Industry veterans love 'em & so will you!



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For Sale: 32-Track Mobile audio recording studio. 34' truck designed for remote events. TV-compatible w/ video monitors and inputs. Serious inquires only please. (512) 255-4136. e-mail: benro@eden.com

Studio space for sale. Celebrity producer's 3,600-sq-ft Cape Cod retreat. 75+mil. records sold. Attached contemp. home, 5 br/4 ba, 2 kit, centrl air, heat, hw flrs, cath ceils, skylites, fp, pond, 15 acres. Referrals closed paid 2%. Asking $749k. (508) 563-9301.

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Need Ace Tech. Asst. w/exp. in circuit design, prod. eng., prototyping, resource & parts sleuthing, technical writing, test design and QC, troblshooting & repair. Send resume and salary req. to: LR Baggs, 483 North Frontage Rd., Nipomo, CA 93444.

Immediate position available for HEAD TECH @ O'Henry Sound Studios, Burbank, CA (record, film scoring environment). Min. 5 yrs. exp. Competitive salary, great benefits. Fax resume Attn: Richard Landers @ (818) 842-5763.

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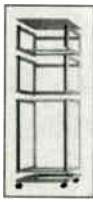

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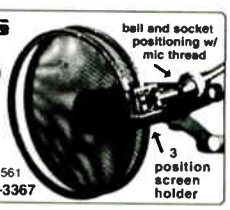

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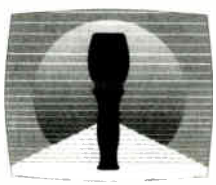

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FEEDBACK

THE DEBATE RAGES ON

I just wanted to say thanks for the incredibly funny feedback you printed in the March '97 issue of *Mix*. The St.Croix Slams made me laugh so hard my stomach muscles are still aching. The replies you printed are the typical replies I hear from my business partner every day when we are talking about the performance differences between his Pentium 166MMX machines and my little Power Computing (not Apple but still MacOS) 132MHz machine. The fact is simply that my MacOS machine is faster in all applications we use, is easier to use (we have each been using our selected platform for over five years) and is more reliable (he still can't connect reliably to the network with one of the three PCs, and I was able to connect 32 Macs and two SGIs within two hours). He crashes at least four times a day; I crash about once a week when I do something stupid. His Wintel is, as Microsoft states, "too fragile an operating system for hosting an Internet server," whereas the SMTP server this will go through to get to you is running on a Mac that is the equivalent to a 386, a machine that, by the way, will not run Windows 95, whereas the Mac SMTP server is using the newest MacOS 7.6.

This is an everlasting argument that the "dark side" doesn't want to hear, and I applaud you for putting up with all the mail that came in. We will continue to coexist here, and we will continue to have this argument. At least, it will continue until the new MacOS for Intel comes out (yes, it is in the works and is expected to be available within the NeXT two years), and we are running all the computers in house, regardless of manufacturer, on the MacOS.

Michael Engel
Senior Audio Engineer
Acoustic Works

MISERY LOVES COMPANY

I was very inspired after reading your column on the hardships of making it in this twisted industry ("Careers From Hell," Insider Audio, March '97 *Mix*). I am 22 years old with a degree in music production and engineering from Berklee College of Music. When I first got out of college a year-and-a-half ago, I started working as a live sound engineer in clubs in the Boston area. After becoming thoroughly disgusted with the politics of that scene, I went on to become a stage hand at all the non-union venues in the area, specializing in sound. I also went to most of the major studios around town and was discouraged to find that all they could use me for was to be an unpaid intern. After sending resumes out all over the country, I finally got some interesting responses. After plenty of phone interviews for the grand position of intern, I had an interview in New York at one very prestigious recording studio, only to find out a month later that they would rather hire someone with no experience at all for less than what McDonalds pays than hire someone with a degree and experience for a couple of bucks more. I was beginning to wonder why I wasted money on a degree.

Anyway, now I'm working in the theaters in Boston, and I'm furiously saving money to move to L.A. to become a recording engineer. When I read your column, I was reassured that successful people in the industry actually did have some of the same problems that I have come across. I am very determined to find a career in my field. Even more so, I'm determined to make a living at it.

Diana L. Grygo
Stoughton, Mass.

MORE FROM SEATTLE

It was great to see the feature on Northwest post-production studios in April *Mix*. We're very proud of the work we do here, and it's always gratifying to know that people take notice outside our market.

There are a few observations I'd like to add to the story: When I left Music Source in 1994 to open Glenn Sound in downtown Seattle, the studio scene was dominated by larger (more than three-room) facilities. Our studio was built to be smaller (two rooms), leaner, and to embrace new technologies like Avid AudioVision and Yamaha 02R. The "boutique" studio approach was a concept that grew out of the need to serve diverse clients—ad agencies, TV/film production companies, and new media developers—creatively, efficiently and profitably. We have just completed our second room, designed by Studio Pacifica, and are extremely happy with our new capabilities and with clients' response to our expanded services.

Three years later, it appears that the "boutique" studio could be an effective model for doing business in the '90s and beyond.

One additional note: It is not commonly known, but in the mid- to late '80s, Seattle had the distinction of employing more digital audio workstations and trained operators than any city in the country. Between three studios there were a total of five AMS AudioFiles and three NED Post Pro systems at a time when the major production centers in the country were still considering their first purchases.

Glenn Lorbiecki
Glenn Sound Inc., Seattle

ON THE LEVEL

Permit me to point out a small error in Bob Katz's article "Level Practices in Digital Audio" in the March 1997 edition of *Mix*. The article consistently takes .775 volts rms to be 0 dBV. Actually, 0 dBV (upper case V) = 1.0 vrms, whereas .775 vrms is known variously as 0 dBv (lower case v), 0 dBu, 0 dBs...

I'm sure this is an error of the typographical sort, but it could be confusing to some readers.

Steve Graham, acting chief engineer, Michigan Radio (WUOM, WVGR, WFUM-FM)
Ann Arbor, Mich.

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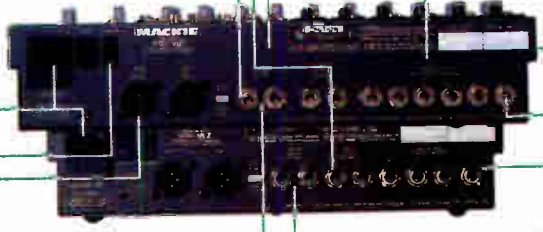

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