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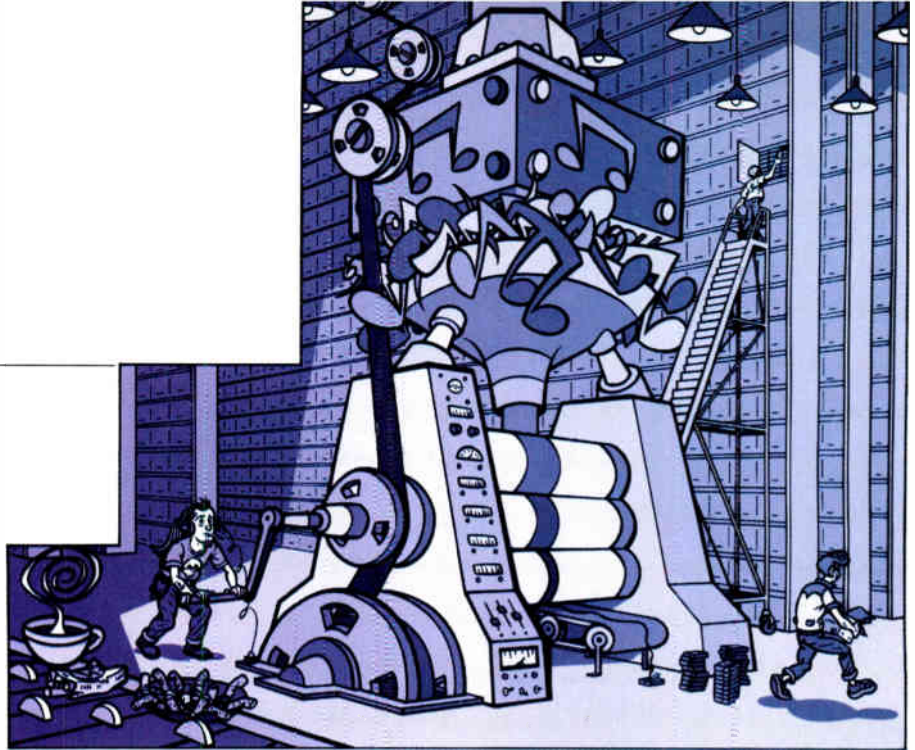
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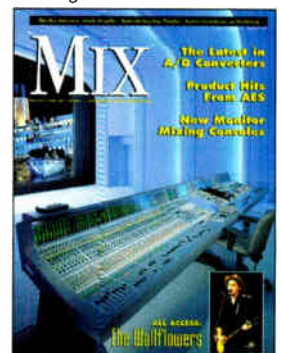
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**Cover:** Mix A at TEC Award-winning Skywalker Sound opened in late summer and immediately hosted some of the biggest films of the year, including *Titanic*, due to open December 19. The AMS Neve Capricorn is reconfigured daily depending on source material—up to 156 inputs in virtually any analog/digital combination. Sondor 6-track mag machines handle record/playback functions. The LCR monitors are JBL 4648A-8s with EV horns; JBL 2450Js handle the mid-lows. QSC power amps and Oxmoor EQs round out the package on the Ranch's largest stage. **Photo:** Beatriz Coll. **Inset:** Steve Jennings.

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 1977-1997



CR1604

# More professionals channel their creativity through

**W**hen you page through this magazine, you're going to see a multitude of ads for compact mixers. Some of the mixers look a lot like our CR1604-VLZ™. Heck, even some of the ads for other 16-channel mixers look a lot like Mackie ads<sup>1</sup>.



■ Pretty soon, you may start to wonder how much difference there really is between all the various mixer makes and models.

■ Naturally, we're going to tell you that there's a VAST difference between the CR1604-VLZ™ and other 16-channel mixers<sup>2</sup>.



■ But luckily, you don't have to take our word for it. One of the best, unbiased benchmarks of mixer performance is who uses it. And that's where the CR1604-VLZ™ blows the competition in the weeds. We're the overwhelming choice of professionals who can afford any mixer they want. And who have taken the time to listen to every mixer on the market.

■ Send for our thick, color tabloid brochure<sup>1</sup> and we'll include a comprehensive list of distinguished CR1604-VLZ™ users. It includes familiar names like the Tonight Show, The Late Show and Saturday Night Live bands, The Presidents of the United States of America, Ronnie Montrose, Microsoft®

<sup>1</sup> Dense, fine print type. Lots of lines and arrows pointing to features. Textured backgrounds.

<sup>2</sup> There ARE vast differences too numerous to mention without resorting to dense, fine print...with textured backgrounds.

A short Grant Reeves bio:  
Music for Sony, U.S. Navy, Anheiser Busch, Apple, Fujitsu, Hewlett-Packard, Hitachi Data Systems, NASA, Siemens, UNISYS, United Way, Airborne Express, LSI Logic, McKesson Health Systems, Pyramid, Las Vegas Chamber of Commerce, Austin Chamber of Commerce, Applied Materials, Weyerhaeuser, KIRO-TV, KICU-TV, KMPG Peat Marwick, among others. Six Gold Tellys, Joelys and other industry awards. For more information, log onto [www.GrantReeves.com](http://www.GrantReeves.com).

<sup>3</sup> Mention in this ad is intended only to denote useage or ownership as reported to Mackie Designs. Mention is in no way intended to represent a specific or implied endorsement by the individuals, groups, programs or production companies listed.

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# CR1604-VLZs™ than through any other 16-channel mixer.

sound design wizard Frank Serafine, Jet Propulsion Labs and all four national TV networks<sup>3</sup>.

■ The list also includes a lot of folks you may not have heard of... a huge group of pros who make their living creating music for ads, documentaries, corporate videos and multimedia. Real live, bonafied electronic musicians like Grant Reeves, shown below with his CR1604-VLZ™, sequencer and air guitar.

■ Bottom line, part one: Everything you track and mix down goes through your mixer. It needs the low noise floor, maximum mix headroom,

pristine microphone preamps, and musical, natural EQ for which Mackie is renowned.

■ Bottom line, part two: You spend more session time in front of your mixer than you do with any other single component in your studio. You want a console that's intuitive, flexible and easy to use... for thousands upon thousands of hours. Ask somebody who owns a Mackie CR1604-VLZ™ and one of the first things they'll probably mention are the "little things," the myriad small details that

make the mixer a joy to work with.

■ Then visit your nearest Mackie Dealer and start channeling your creative impulses through a real CR1604-VLZ™.

No way were we going to get this ad past Greg Mackie without at least SOME informative fine print. First, the CR1604-VLZ basics: 16 x 4 x 2 configuration

- with 16 mic and 16 line inputs
- 16 inserts & 8 direct outs
- 6 aux sends per channel
- 2 master aux sends & 4 aux returns
- 4-band EQ with wide sweepable midrange
- AFL/PFL solo
- Large emitter geometry discret mic preamps. There's more! Here's a list of CR1604-VLZ features and components NOT found on other comparably-priced 16-channel mixers.
- Unique multi-way rotating input/output pod
- In-place stereo solo



One of the six industry awards won by the CR1604-VLZ.

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- RUDE solo light
- Control Room/Phone source matrix
- Effects To Monitors on Aux Returns 1 & 2
- True logarithmic-taper 60mm faders
- Balanced inputs & outputs (except headphone, tape in/outs, and direct outs)
- Comprehensive, easy-to-read manual.

Below: a few of the 400+ folks and one incontinent Chihuahua (not shown) who work at Mackie Designs in Woodinville, WA, 20 miles northeast of Seattle.

# FROM THE EDITOR

## NEW YEAR'S RESOLUTIONS, REVISITED

We're just a month from 1998, and it's time to start thinking about New Year's resolutions. No, not for NEXT year, but all those resolutions you made back in January 1997 and never did anything about. So as the clock ticks down and the days get shorter, it's time to make good on those pledges. Can't remember them all? Here are some suggestions:

Begin with the basics. You aren't really fooling anyone with those dead channels in your snakes or studio lines, and you can't always assume your assistant engineers will remember which tines are shorted. Fix them today! The same goes for bad/intermittent console modules—pull 'em out, get 'em repaired or, better yet, buy a couple of spare modules while the manufacturer still has the parts in stock. Along the same lines, pick up some extra meter lamps. No matter how well your gear performs, nothing looks tackier than a dark VU, whether it's on a multitrack or meter bridge.

Clean the joint. A client's impression of your services comes from the whole picture, no matter what equipment you own. Some Windex and a couple of rags is a small investment. Rent a carpet shampooer and get rid of that ugly brown splotch on the floor in the lounge. Better still, invest a couple hundred on some new carpeting. And on the subject of cleaning, rinse out your mic windcreens—or at least scrape the dried brie off the pop filters—once a month.

We all depend on computers: Create a realistic schedule for regular backups, use a disk optimizer/defrag program religiously and clear unused inits, extensions and obsolete drivers out of your system today! Regular backups also apply to tape-based recorders, such as MDMs, where backups are easy and inexpensive, but nobody thinks about them until it's too late.

At least once a year, go through your entire system and actually *listen* to everything. A couple of hours of critical listening can reveal weaknesses and unmask low-performance components that may need upgrading—which may appear on next year's list of resolutions.

Of course, other neglected items from your 1997 resolutions probably include eating healthy, stopping smoking and exercising more, but those can always wait until 1998 (next month). Now's the time to plan future purchases, and to help out, this issue has complete coverage of the product hits from AES. In keeping with this month's mastering theme, Mel Lambert chats with TEC Award-winning mastering engineer Bernie Grundman; Barbara Schultz talks to the restoration team on *Genius & Soul: The 50th Anniversary Collection*, the new Ray Charles five-CD boxed set; Loren Alldrin looks at the state of the art in new outboard analog-to-digital converters; and Dan Daley investigates the hot topic of media storage and archiving.

There's plenty more, including Rick Clark's exclusive interview with Mark Knopfler, Bruce Swedien on recording the 1962 classic "Duke of Earl" and backstage tours with The Wallflowers and Live.

Enjoy the ride.



George Petersen

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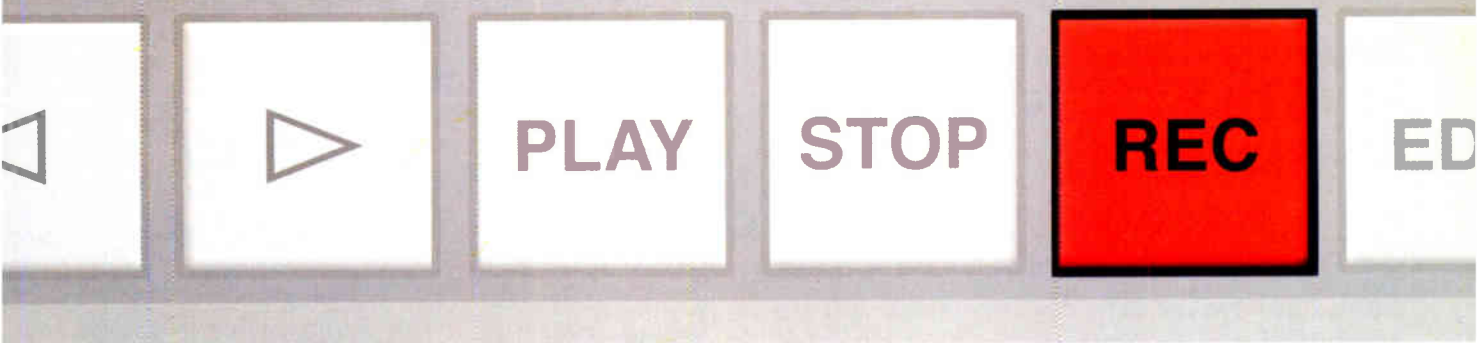
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Founded in 1977  
by David Schwartz and Penny Riker Jacob



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# CURRENT

## BRIAN GARY WACHNER, 1945-1997

Brian Gary Wachner, president and founder of BGW Systems, passed away in October after a bout with cancer.

Wachner's audio aspirations began in high school, where his tube power amp designs won awards at local science fairs. A 1967 University of California at Berkeley grad in computer science and electrical engineering, Wachner worked for IBM, Xerox and Litton, where he was part of the design team for the computers used in the first AWACS radar planes. He formed BGW Systems in 1971, initially to make computers, but built some power amps as a means of testing manufacturing methods. The amps caught on, and by 1973 Wachner pioneered the concept of amps based on removable, serviceable modules. A year later, Universal Studios contracted with BGW to supply hundreds of amps for use with the Sensurround subwoofers supplied to theaters for the film *Earthquake*. That particular amp—the Model 750—remains in production in its fourth generation, as the 750G.

Other than a brief foray into consumer electronics (with hi-fi preamps and home amps), BGW always focused on the needs of working pros. BGW now makes power amplifiers, rack-mount computers, subwoofer systems, and metal rack panels and accessories. A quiet, humble man whose credo was "Do it right!" Wachner was a consummate perfectionist, insisting that all products be made in-house at BGW's

Southern California facilities. Company VP Barbara Wachner assumes the job of president, and operations continue as normal, with BGW's engineering departments developing products for the 1990s and beyond. Wachner is survived by his wife, a daughter and two sons. His impact on the entire audio industry will be felt for years to come.

—George Petersen

## MUSIC PRODUCERS GUILD DEBUTS

MPGA, The Music Producers Guild of the Americas, was launched at the Audio Engineering Society in September. The group, founded by Grammy- and TEC Award-winning producer/engineer Ed Cherney, was established to provide music producers and recording engineers with "a means to express shared views and concerns, based on specific needs and mutual standards of excellence," says Cherney. The primary goal, according to Cherney, is education; the group intends to establish a program to disseminate information to members and to represent professional interests through lobbying and affiliation with other domestic and international industry associations.

At a press conference during the AES show, the association was announced



The MPGA, founded by Ed Cherney, was launched at the September AES show.

and chairmen introduced, including Elliott Scheiner, Music Producers Committee; Al Schmitt, Audio Engineering Committee; and George Massenburg, Technical Committee. In addition, Chris Stone of the World Studio Group will serve as executive director, and David Goggin as director of communications.

For MPGA literature and applications, call 213/465-7697 or write MPGA, 216 N. Lucerne Blvd., Hollywood, CA 90004.

—CONTINUED ON PAGE 12

## MFEA MAKES CHANGES IN BOARD OF DIRECTORS

The Mix Foundation for Excellence in Audio has announced changes in its board of directors. Robert Boucher, formerly chairman and CEO, has resigned, and Thomas J. Morgan, president of Cardinal Business Media, will be the new chairman. Hillel Resner, general manager of the foundation, will become president. Thomas C. Breslin, vice president and CFO, will continue in his current position.

Established in 1990, the Mix Foundation raises funds, through the TEC Awards and other programs, for hearing conservation and educational programs in the audio arts and sciences.

## MIX FOUNDATION GRANT WINNERS ANNOUNCED

The Mix Foundation for Excellence in Audio recently announced the recipients of the Mix Foundation Scholarship Grant. They are Joshua Allen, a student in the recording arts program at Full Sail Real World Education; Travis Gregg, a sophomore studying audio recording at Indiana University; and Claudius Mittendorfer, a third-year student in music production and engineering at Berklee College of Music.

Applications for 1998 will be available in January. For more information, send your name and address to: MFEA Scholarship Grants, 1547 Palos Verdes Mall #294, Walnut Creek, CA 94596; or e-mail the information to KarenTEC@aol.com. No phone calls, please. ■

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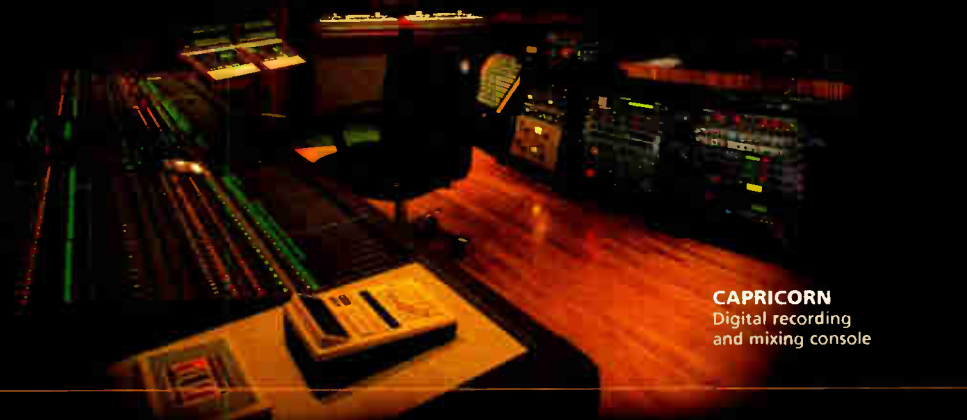


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# INDUSTRY NOTES

John Andrews joined SSL (Begbroke, Oxford, UK) as marketing director. His background includes directorships at EMI Audio Visual Services and Neve Electronics, and he is a regular contributor to several trade journals...Alhambra, CA-based Martinsound announced the promotion of Chris Walsh to the new position of VP of sales. Walsh joined Martinsound two years ago as sales director after serving as general manager for Guitar Center...Meyer Sound Europe relocated to 39-49 Hastings Street, Luton, Bedfordshire LU1 5BW. The larger facilities will accommodate the growing staff. James Bamlett was hired as head of technical support; and Suzy Gassick and Justin Banks were brought onboard to jointly handle administration and operations. Meyer also extended its sales territory into Russia, appointing I.S.P.A. of Moscow as its official Russian dealer...Quantegy (Peachtree City, GA) news: Tony D. Wilson was named vice president of sales and customer support, U.S. and Canada, and Frank Foster was hired as director, product/application strategies and customer support. The company recently inaugurated its new world headquarters building at 800 Commerce Drive...Michael MacDonald was promoted to vice president of marketing at JBL Professional (Northridge, CA). JBL also announced that Mark Gander will continue to serve the company as vice president of strategic development...Quincy, Illinois-based Harris Corporation promoted Jay Adrick to vice president of Harris broadcast division's systems operations, and Jim Woods was promoted to vice president of studio and radio product lines...Patrick Artiga joined Dolby Laboratories (San Francisco) as director of distributor relations...Liquid Audio announced that the Internet Underground Music Archive (IUMA) will begin selling Liquid Tracks, CD-

quality, copyright-protected music for download and purchase from its Web site, [www.iuma.com](http://www.iuma.com). Rounder Records will also utilize Liquid Audio's product family for the same purpose ([www.rounder.com](http://www.rounder.com)). Liquid Audio and DES, a Hollywood-based provider of 21st-century content manufacturing solutions, jointly announced an agreement to provide an end-to-end solution for delivering high-quality digital audio content via the Internet for entertainment industry professionals...At Crown International (Elkhart, IN), Richard A. Newberry was named president and chief operating officer and Blair McNair was brought onboard as consultant/contractor liaison...J. Nichole Bradley recently joined Dallas, TX-based Russ Berger Design Group Inc...Shure Brothers Inc. (Evanston, IL) appointed Jim Furst as VP of international sales and marketing...Changes at Young Chang America Inc.: James Kwon was appointed president shortly after YCA's parent company, Young Chang Co. Ltd., named Mr. H. Y. Son as its new president. YCA will relocate from Cerritos, CA, to the Seattle/Tacoma area. The Kurzweil Digital Piano division and the Young Chang Acoustic Piano division were combined; Thomas Miller was tapped for vice president of the new division. Bruce Crockett was appointed president of the Young Chang research and development institute...Wayne Hrabak was appointed marketing manager, pro audio group, at Yamaha Corporation of America, pro audio and combo division (Buena Park, CA)...Risskov, Denmark-based Martin Professional hired Harry von den Stemmen as business development manager...Kent Ormiston was brought onboard as marketing communications manager at TC Electronic (Westlake Village, CA). Rick Gentry was promoted to national sales and marketing manager at Hafler (Tempe, AZ). ■

—FROM PAGE 10, CURRENT

## NAMM IS NEXT MONTH!

The NAMM International Music Market '98 is moving to the Los Angeles Convention Center. The show, to be held Jan. 29-Feb. 1, is open to retail music store buyers, manufacturers of music products, and manufacturers' representatives of the music product industry. Visit the NAMM Web site, at [www.namm.com](http://www.namm.com), to find out more about the show (including badge registration, seminar information and exhibitor list), the Convention Center and Los Angeles and the surrounding area, including hotel and transportation information.

## NEW WEB SITES

Telos Systems and Olympia Online Inc. announce [Audiolounge.com](http://Audiolounge.com), an international network of radio stations and special programs broadcast over the Web. At [www.audiolounge.com](http://www.audiolounge.com).

Gepco International debuts a Web site, at [www.gepco.com](http://www.gepco.com). There, visitors can research products and specs, make catalog requests, get company news and communicate with staff members.

The Musician's Assistance Site is a free, Web-based directory and database of music industry information. Topics on the site include promoters, distribution, music stores, studios and mailing lists. Visit [www.musicianassist.com](http://www.musicianassist.com).

Sennheiser's Web site features an online, interactive competition, the "Cool Sounds" sampling contest. Visitors are encouraged to submit their "coolest" samples for a chance to win a weekly prize and to be entered into a grand prize drawing. The contest ends December 31; visit [www.sennheiser.com](http://www.sennheiser.com).

Spirit by Soundcraft introduces a home page at [www.spiritbysoundcraft.com](http://www.spiritbysoundcraft.com). The site provides technical and support information, pricing, press releases and representative information.

Yorkville announces an updated Web site, at [www.yorkville.com](http://www.yorkville.com). The page includes a virtual factory tour, online reference audio guide and product manuals.

## CORRECTION

In October's "Current," we inadvertently printed an incorrect Web address for QSC Audio. You can find the Web site at [www.qscaudio.com](http://www.qscaudio.com). ■

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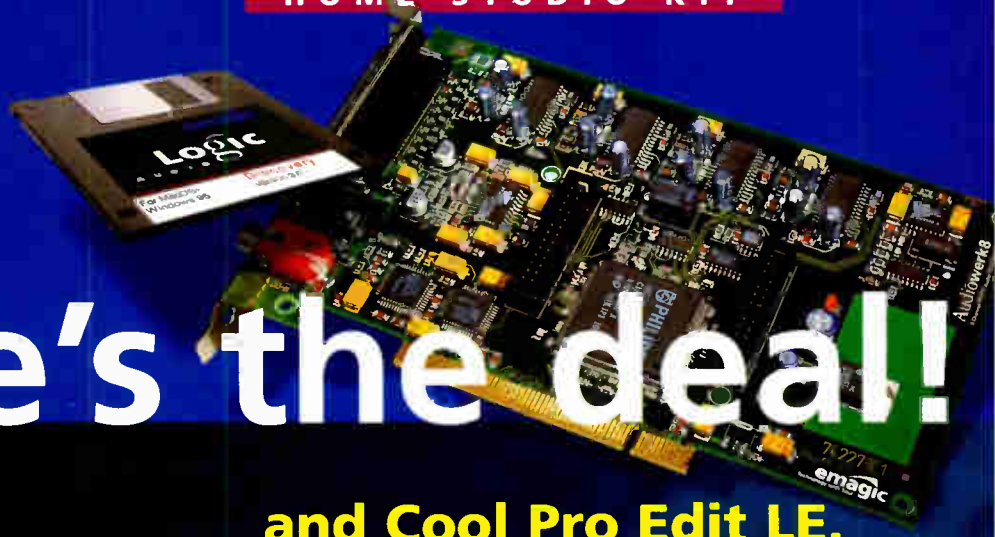


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AUDIO

**ZAP**

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# YEAH, I SAID THOSE THINGS

## AND I'LL SAY 'EM AGAIN

### THE FIRST THING I SAID

In my August column, "Now You Don't Hear It, Now You Do—Beyond Outer Limits," I talked about an ultrasonic sound projection concept that was both novel and possibly significant to the future of audio. This column elicited calls from old friends that I hadn't heard from in years, and various communications from others that I have never heard from before.

I was exposed to old patents and older press showing that this had been tried many, many times before, by seriously large corporations, yet was never brought to market. I was shown old two-transducer systems that mix in air and old single-transducer systems that mix at the driver. I was shown

early attempts that predate man.

It was meticulously explained to me why this should work, and that it was only the limitations of the state of the art in ultrasonic drivers that were limiting performance.

It was meticulously explained to me why this will never work, and that it is only the limitations imposed upon us by those pesky laws of physics that were limiting performance.

Many friends were surprised that I would write about something that I had not personally experienced. These people had a point—I generally will not do that, for obvious reasons. But in this case, an old friend that I trust completely

(I'll call him Mickey Toneband, as his real name is well-known) told me about the current work in this area, and I also knew one of those involved in the work.

Well, I got my chance to play with the process in a hotel room at the Marriott Marquis during this past AES convention, and here's the facts as I sees 'em. Right off the bat, I could see that this would have been the ultimate stoner toy in the '60s. You can sit in a room with a bunch of people and get them to chase a phantom voice all over the place. On the walls, the floor, out of the refrigerator, the ceiling light...you name—no, you *aim* it—and it's there.

I sat one foot from one of my

—CONTINUED ON PAGE 192

BY STEPHEN ST. CROIX

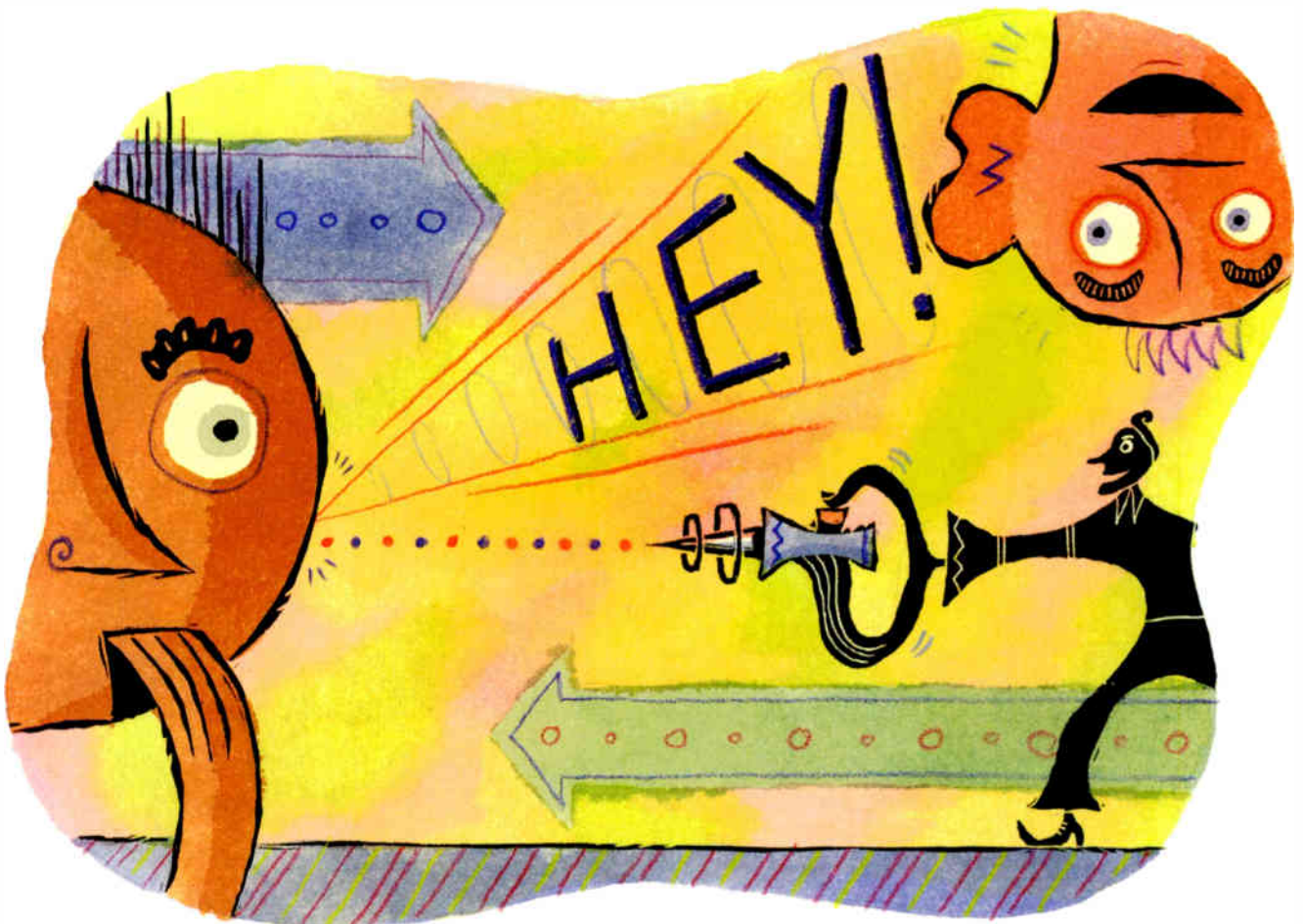


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**INSIDER AUDIO**

Richard Dyer-Bennett, who put stuff out on their own labels, he wandered into a recording studio and laid down a dozen of his tunes. "There were two studios in the Boston Yellow Pages at the time," he recalls. "I went into one of them, and they were rude—like when you go into a restaurant and you're a nobody, and they treat you like they don't even see you." The other one, Trans Radio, was more receptive, and there Lehrer recorded the 12 tracks for his album in an hour.

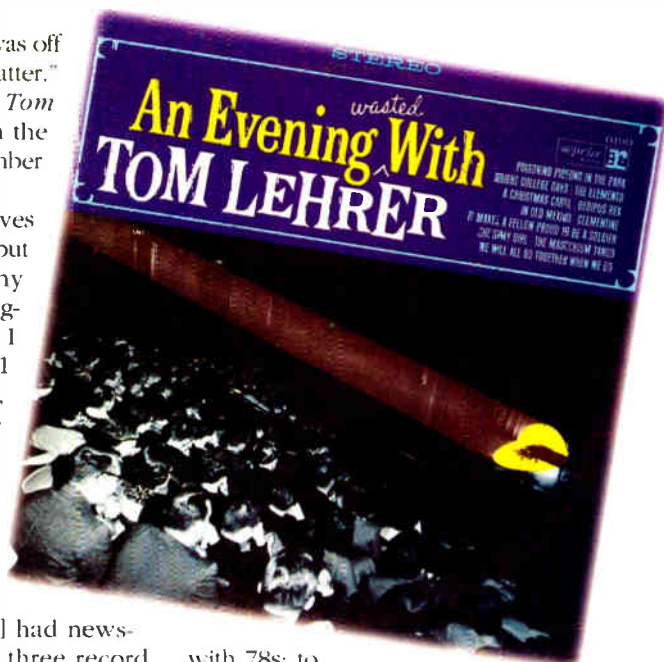
"We did it with one mic for the voice and the piano. I did a song, and if I didn't like it, we backed up the tape and recorded over it. The tape cost extra, and this way there was no splicing or slipping. At the end of the hour, we had the whole album on tape. The recording budget was \$15. I still have the receipt."

The studio had an arrangement with RCA Custom Pressings in New Jersey, and so that's where Lehrer sent his tape, to be pressed on 10-inch vinyl. He convinced the wife of a colleague to do the cover. "She did it for nothing. It had to be cheap to print, and no overlapping

colors, so if the printing was off by 1/8-inch it wouldn't matter." The record, *Songs of Tom Lehrer*, was released on the Lehrer label, catalog number TL 1.

"I asked people, relatives and friends and stuff, if I put out a record how many they would buy, and I figured I could sell 300. So I ordered 400. We sold 91 records the first week, and by the end of the month I sold them out. I made enough profit to press some more. There was never any risk, never any capital investment. The Harvard houses [residence halls] had newsstands, and there were three record stores in Cambridge who carried them as a service to the community, supporting local artists. The record was \$3.50, and they paid me \$3 each. Eventually I raised the price to \$3.95.

"I actually owe my career to technology. The LP had come in around 1948, '49, and now it was feasible to do this. It would not have been possible



with 78s; to make and ship all those multiple-disc albums would have been much too expensive."

Lehrer soon found himself being booked into nightclubs in and out of Boston, and his record started selling all over the country, mostly in college towns but also in San Francisco, after

—CONTINUED ON PAGE 201



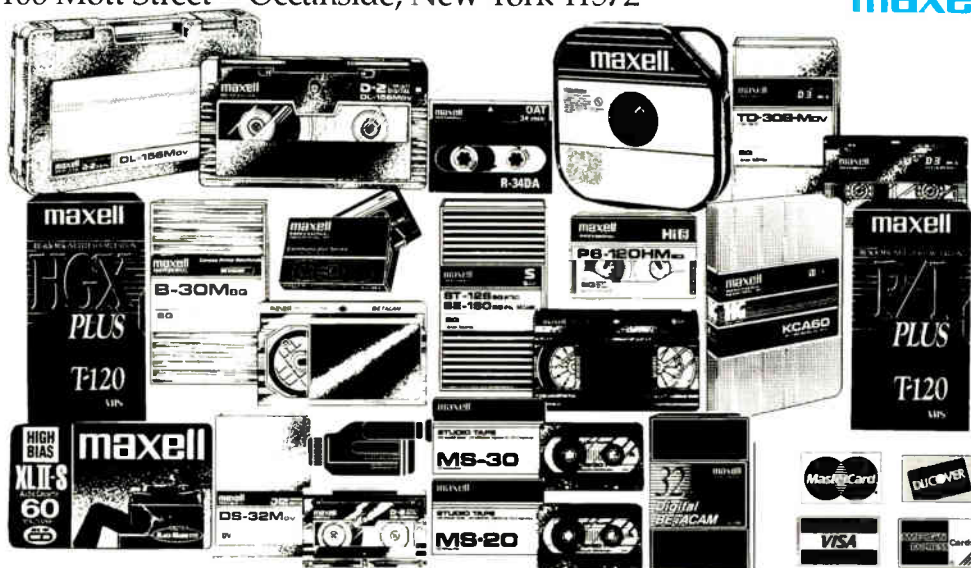
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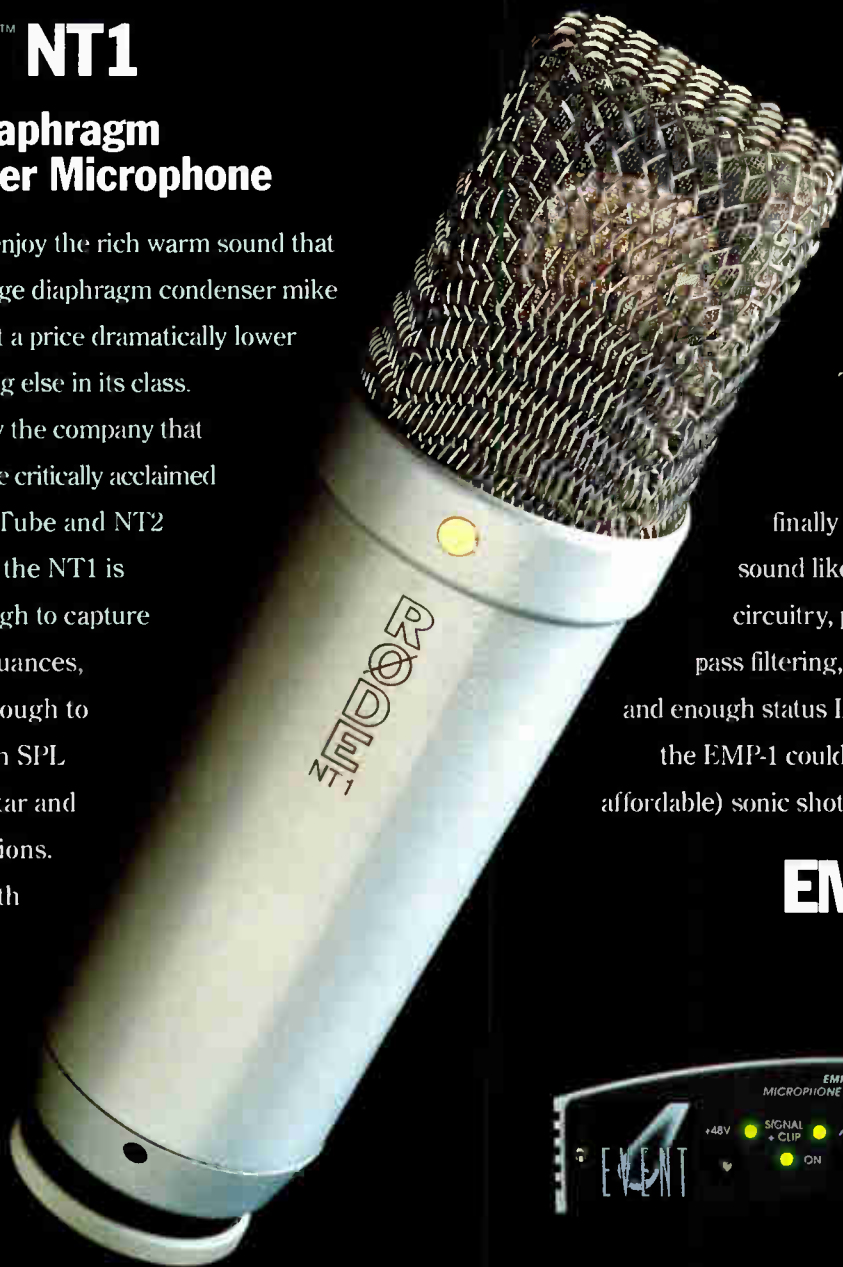
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World Radio History

BY GEORGE PETERSEN



PHOTO: JOHN R. RAMEY/IMAGE BANK

# AES GOES GOLD!

## Highlights of the 103rd Audio Engineering Society Convention

**F**rom September 26-29, 1997, a record 20,000-plus audio professionals walked the hallowed halls of New York's Jacob Javits Center to check out the latest in audio technology at the 103rd convention of the Audio Engineering Society. Keeping with the society's 50th-year celebration, the



PHOTOS COURTESY AES

George Massenburg delivering the convention's keynote address. Left: More than 350 exhibitors packed the Javits Center.

convention theme was "AES Goes Gold." And despite a few snags, this proved to be one of the best AES shows in recent memory. Realizing that many attendees (particularly younger people) want to attend AES workshops but couldn't afford a full program pass, convention chair Russ Hamm suggested offering tickets to various events

on an *a la carte* basis, and this proved to be a popular option.

As always, the real action was on the AES floor, where 350 exhibitors showed new gizmos of every description. Unfortunately, the show took a sour note as thieves (perhaps working in teams) ripped off tens of thousands of dollars in gear from more than a dozen manufacturers, beginning with easy-to-conceal tube microphones and then becoming more brazen, walking away

—CONTINUED ON PAGE 28



## DAWs, Software and Peripherals

# Computer-Based Audio Shines at AES

BY PHILIP DE LANCIE AND SARAH JONES

**W**hen it comes to computer-based audio production systems, the most striking aspect of the 1997 AES show in New York was the sense that this market has reached a new, mature phase. Important differences remain between competing systems in terms of their target applications and level of sophistication, but much of the basic approach and functionality on both Macintosh and “Wintel” systems is now quite similar. So instead of any one big show-stopper, AES offered more in the way of incremental developments in several areas, including DSP plug-ins and Internet audio preparation tools.

With common editing and DSP features such as EQ, dynamics and reverb either built into most software packages or available as plug-ins, developers have started to think a little harder about the gaps that remain, making 1997 the year of the niche plug-in. Many of the noteworthy products that we saw were at the “development partners” booth at Digidesign, whose long-term third-party strategy originally got this market going. For instance, Line 6 was showing AmpFarm, a TDM plug-in offering software emulation of popular tube amplifier

tones (including Fender, Vox and Marshall) that can be applied to any track. Waves bowed the MaxxBass, a mastering tool that uses psychoacoustics to maximize the perceived bass output of any size speakers by adding upper harmonics derived from a signal’s fundamental bass notes. Other new plug-ins include Lexicon’s LexiVerb (TDM), the Aphex Aural Exciter and Opcode’s new vocoder, the fusion:VOCODE, which kicks off the company’s forthcoming line of AudioSuite, Premiere and DirectX plug-ins.



*Waves' MaxxBass boosts perceived bass output.*

In other plug-in news, Sonic Foundry showed a line of DirectX audio plug-ins, beefing up the plug-in selection available for Win-

—CONTINUED ON PAGE 34

—FROM PAGE 26, AES HIGHLIGHTS

with a timecode DAT recorder, a rack of signal processors, studio monitors, rackmount gear, direct boxes, a sampling drum machine, synthesizer and more. Having removed nearly everything that wasn't nailed down, these "visitors" then turned to stealing briefcases and laptop computers. And to top it off, a popular studio in town was "relieved" of a rack of vintage Neve modules during an evening open house. Security has traditionally been a problem at AES, and this show needs to implement additional measures—such as guards on the loading dock (a convenient back-door exit during the show), checking parcels and cases of those leaving the hall, and perhaps something as simple as requiring ID when accepting registration cards. Right now, it's too easy for someone to plunk down \$40 for an exhibits-only pass, register under a phony name, and walk out later with a C-12VR in a coat pocket. Thieves hate having their names on a list.

But of those products that weren't ripped off the first hour, the following is a selection of some hip new technology I saw at AES. There were plenty of other product hits, and we'll be running these in our new product sections in future issues.

### CONSOLES, CONSOLES, CONSOLES

New digital consoles were everywhere, in every price range. In fact, eight digital mixers made their U.S. debut at AES, including the Amek Soho, Otari Advanta, Soundtracs DPC II, Ramsa WR-DA7, SSL Avant, SSL Aysis Air, Studer D950 and a new short frame version of the Sony Oxford. Also, Ontario's Sascom Marketing (now the North American distributor for Stage Tec products) showed a new version of the Cantus digital console, now available with 40-bit floating point processing and proprietary 28-bit A/D converters. (For complete details on all of these consoles, see the cover story in last month's *Mix*.) More interesting, perhaps, was watching the bookies on 7th Avenue posting odds and taking bets on whether Mackie or Tascam would deliver its digital console first. The race is on.

Analog consoles weren't forgotten. John Oram showed a new large-format, 48-bus console design (priced about \$5,000/channel) featuring Total Operational Recall (TOR™), which was fast, simple and instantaneous. The console incorporates a 386 micro-

processor into each module, which handles the recall commands, and the board also features 5.1/7.1 mixing, motorized upper and lower faders and onboard dynamics, Oram Hi-Def EQ and noise floor metering on each channel. Amek announced the 9098i, an in-line version of its Rupert Neve-designed 9098 board, with LCRS and 5.1 support, and frame sizes up to 120 channels. Also designed for high-end recording/broadcasting is Calrec's new Q2, another in-line design, with up to 96 channels (192 on remix), 10 auxes and optional 32-track routing. On a smaller scale is Summit's TMX-420 rackmount, hybrid tube/solid-state line mixer (\$3,695), with four inputs (expandable to 16), phase switching, pre/post send and separate master section. Very hip and very analog.



Summit TMX-420

### RECORDERS:

#### NEW IDEAS, NEW PRODUCTS

AES just wouldn't be AES without new recorder introductions, and besides the still-not-shipping-at-press time Alesis M20 and Tascam DA-98 MDMs, there were numerous other introductions.

One of the most talked about products at the show was the Tascam MMR-8 digital dubber, the result of a strategic partnership between Timeline and Tascam. The concept is brilliant: Record tracks on an MMR-8 and drop them right into a Pro Tools, WaveFrame or any OMF-compliant system—or start on a workstation and read the tracks on an MMR-8 anywhere. Priced at \$12,999, this 8-track, disk-based recorder supports 16- and 24-bit recording, and other features include locking to bi-phase (forward or reverse), pull-up/down, LTC or VITC chase with offset and RS-422 9-pin Sony P2 support. Eight channels of AES/EBU digital I/O are provided, but oddly, no TDIF ports. I assume they'll take care of that later, maybe even along with ADAT LightPipe interfacing, but don't hold your breath on the latter happening



Sonifex Courier

anytime soon.

Meanwhile, HHB was showing off the new SADiE file compatibility (SADiE and Octavia) feature of the Genex GX-8000 rackmount MO recorder, the only MO deck to offer multitrack 24-bit/96kHz recording.

And former HHB distributor Independent Audio was showing the Sonifex Courier, a portable hard disk recorder (\$3,650, without onboard ISDN option) that stores audio on removable PCMCIA cards, ranging from 11 minutes to 18 hours of storage. Courier also offers onboard graphical waveform editing, or audio can be stored as .WAV files or as compressed MPEG Layer II format.

But what really blew me away—unquestionably the biggest bargain of the show—was Akai's DPS12, a 12-track, uncompressed 16-bit random-access recorder featuring 250 virtual tracks, a 20-channel digital mixer, editing and DSP features accessed through a menu-driven LCD screen, balanced analog inputs, S/PDIF I/O and MIDI sync. Storage is to either SCSI hard disk or a front panel slot for an internal Jaz drive. Price? A paltry \$1,499, sans drive.

In perhaps a too quiet move, E-mu



Akai DPS12

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announced a plug-in DSP card for its Darwin 8-track disk recorder/editor. The 4014 DSP card adds astounding formant-corrected polyphonic pitch shifting via a 32-bit floating point processor. Fix one flat note, change the gender of an entire vocal performance and add absolutely smooth 32-bit (no stairstepping) fade ins/outs. You have to hear this to believe it, and this really expands the horizons of the Darwin system.

The DATs keep on rolling! Sony unveiled the PCM-R300, a rackmount studio DAT with S/PDIF and RCA analog interfacing, 20-bit converters and on-board Super Bit Mapping. Retail? \$995.

If you were looking for a standalone CD-R recorder, this was the show, with HHB, Fostex and Otari all exhibiting rackmount CD-R drives based on a Pio-



**AKG Solid Tube**

neer transport. Pick the color and feature set you need, plunk down about two grand and take one home.

**STEPPING UP TO THE MIC...**

It's been a long time since I've seen so many interesting new mics at a single AES convention. Described as a "project studio microphone," Neumann's TLM 103 (\$995) is a cardioid, large-diaphragm condenser mic with a self-noise stated as an impressive 7 dB DIN/IEC 651 (A-weighted).

AKG launched the Solid Tube, a single-pattern, large-diaphragm studio tube microphone priced at an affordable \$1,250 (pro user net), including mic, shockmount, power supply, cable, foam windscreen and aluminum carry case. The electronics are based on the common 12AX7A tubes, so if the tube fails during a session, any nearby Fender Twin Reverb amp will have a replacement part available. And the

tube glowing inside the mic illuminates the AKG logo—*tres* cool! In other AKG news, the company cut the price of its C-3000, C-5353EB and C-1000S by 50%.

CAD unveiled a prototype of its VX2 Dual Valve Condenser Microphone, a multipattern design (cardioid, figure-8, omni) with two tubes and a huge 1.25-inch diameter capsule. Optionally, users can order the mic with a 24-bit digital converter built into the power supply. Also, CAD plans to offer interchangeable alternate capsules so the mic can be individually tailored to various applications.

Along with the rest of its handmade-in-Berlin mics, BPM Studio Technik showed the CR-10, a cardioid-only version of its acclaimed large-diaphragm CR-95 FET studio mic, but at a you-need-one-now price of \$549.95, with



**BPM Studio Technik CR-10**



**Fostex CR-200**

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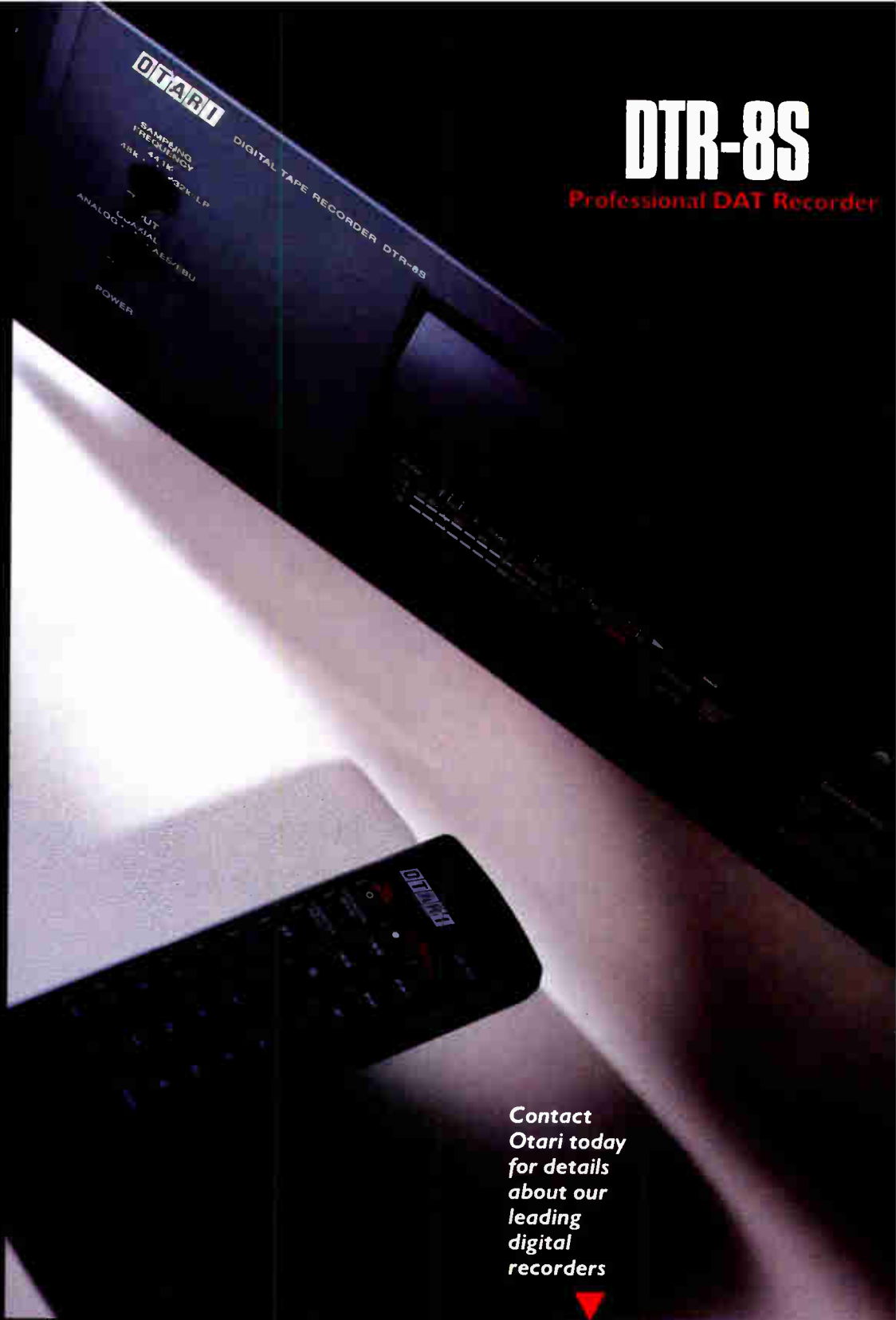
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shockmount, pop filter, cable and aluminum road case.

Now available in the States from Germany's Dirk Brauner (www.dirkbrauner.com) is the VMI, a hand-made tube mic combining a gold-plated, large-diaphragm capsule with an original Telefunken AC 701k tube and a continuously variable control for any polar pattern, ranging from omni through cardioid to figure-8. A stereo tube mic is also offered.

Groove Tubes has been working overtime, adding three new mics to its line. The MD5sc is a large-diaphragm (gold sputtered) FET condenser mic priced at a reasonable \$649, with shockmount and stand adapter. The MD5sm is identical, but adds multipattern (cardioid, omni, figure-8) operation and is \$799. The MD6tm is a vacuum tube condenser model with a large-diameter, dual diaphragm capsule, four patterns, highpass filter and pad, along with cable, stand adapter and shockmount. Retail is \$1,395 with a PS2M power supply, which can handle two mics. Better yet, get a pair for stereo miking for only \$2,444!

Always up to good ideas, those lov-

able crazies at Audio Engineering Associates (AEA) showed a replica case of an RCA 44, but hidden inside is a clip for mounting a small mic, preferably a figure-8 model such as a Schoeps or Beyer, for re-creating this bidirectional classic with updated performance. And it's only \$600!



BLUE Bottle microphone

And while we're on the subject of re-creations, Baltic Latvian Universal Electronics (BLUE) has unveiled its own version of Neumann's classic "bottle" microphone for \$4,200. BLUE also showed the B-7 (\$950), which is a replacement capsule adapter that converts small-diaphragm mics such as the AKG C451 or Neumann KM84 into large-diaphragm models.

#### SIGNAL PROCESSING, FRONT AND CENTER!

Lexicon demonstrated Logic 7, a new surround sound technology for recording

and distributing multichannel sound on existing 2-channel media (DAT, CD, broadcast, etc.), with full backward compatibility. What I heard sounded great, but a quick AES demo is a far cry from intensive critical listening. We'll be keeping tabs on this one in the months to come.

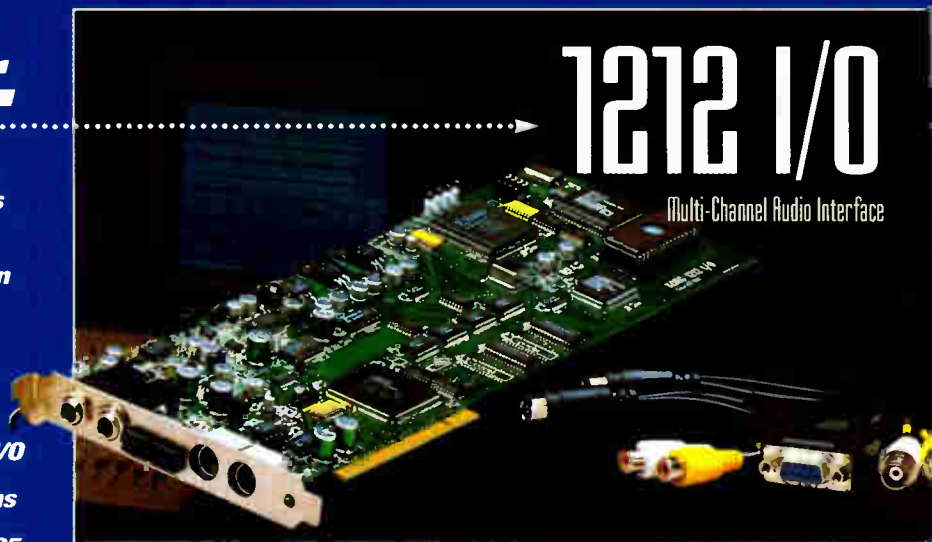
It's hard to believe, but digital converters were big news. And if you thought 96 kHz was state-of-the-art, you'd better think again. Nashville-based Canorus, which distributes dCS products, was offering ongoing demos of its superb 192kHz 904 ADCs and 954 DACs, capable of handling anything from 16-bit 44.1kHz to 24-bit 192kHz. (For more converter news, see the digital converter story in this issue.)

CEDAR was showing Series X, a new set of stand-alone noise-reduction units including the DCX De-clicker (\$5,995), CRX De-crackler (\$6,495) and DHX De-hisser (\$6,875). The units are based on the same technology found in CEDAR's high-end Series II modules, but trade away some display and control features for a lower price point.

Night Technologies Inc. showed a prototype of a dynamics processor

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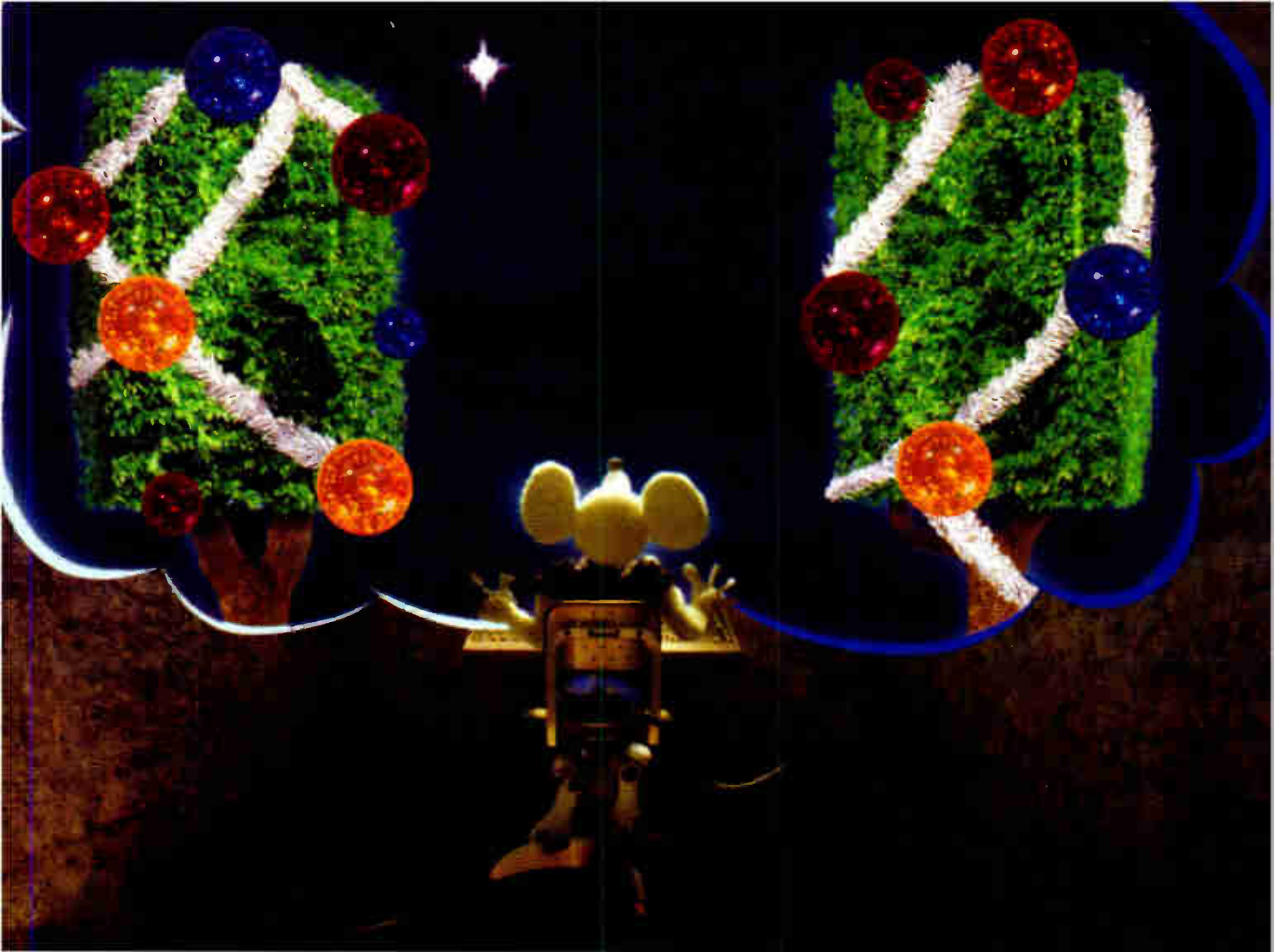
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World Radio History

they call a "Lifter," essentially a transparent form of compression that adds up to 12 dB of gain to quiet passages, while leaving louder sections untouched. The unit can also add a touch of NTT's Air Band EQ to counteract the dulling effect of heavy compression. It sounded great.

The best-looking signal processor on the floor was the Manley VoxBox (\$4,000), which takes the concept of a voice processor to the next step, with a state-of-the-art tube preamp, passive opto compressor, de-esser and a real Pultec full-range EQ in a single chassis. Sweet!



JBL LSR 32

#### STUDIO MONITORS: BIGGER, BETTER

JBL is getting very serious about the mid-sized monitor market. Its new LSR 32° uses "Linear Spatial Reference" technology that goes beyond mere horizontal and vertical axial response: LSR spatially measures a monitor's performance response in a 360° sphere that surrounds the speaker in all directions, taking into account that producers and engineers make critical decisions within a ±15° vertical and 30° horizontal axis. The LSR 32 combines a 12-inch woofer with a 5-inch Kevlar cone mid and a 1-inch HF driver in an EOS (Elliptical Oblate Spheroid) waveguide for 60°x100° dispersion—ideal for working on large consoles or integrated (workstation/console/computer) studio environments.

Meyer introduced the HM-1S, a compact studio monitor based on a coaxial driver (7-inch LF and 1-inch soft-dome HF on a constant directivity horn). A total of 400 watts of bi-amplification is built into the enclosures, which weigh only 11 pounds.



Hafler TRM8

Hafler has also entered the power monitor milieu, with its TRM8. Priced at \$2,400/pair, the TRM8s include 225 watts of onboard Trans-Nova bi-amplification in each cabinet driving an 8-inch woofer and a 1-inch soft-dome tweeter.

If you want the really BIG sound, Hot House showed its AMS12A/ASB212, which combines a dual 12-inch/600W subwoofer with a Tannoy AMS12A powered Dual Concentric 400W studio monitor. Peak SPL is in the 130dB range.

New ideas and speaker technology don't always go hand-in-hand, but the Professional Monitor Company (PMC) showed its IB1S midfield monitors, which combine a 10-inch flat piston woofer loaded into a 9-foot internal transmission line for system performance down to 25 Hz, despite the speaker's reasonable 29x13x18-inch enclosure.

#### AND THE REST...

Free stuff: Digidesign will offer free, fully functional copies of Pro Tools PowerMix™ Version 3.3, downloadable from [www.digidesign.com](http://www.digidesign.com). Running on any Power Mac computer, 3.3 can record two tracks simultaneously, with up to 16 playback tracks (two bands of EQ per track). The catch, of course, is that having used version 3.3 for a while, you'll want to upgrade to a full hardware-based Pro Tools system in the future. Of course, there was much more at AES. *Mix* technical editor Chris Michie presents the show's sound reinforcement hits in this issue's Live Sound section. And if you missed the show, don't despair: Next year AES comes to the fun capitals of the world, in Amsterdam (May 16-19) and to San Francisco from September 26-29. See you there! ■

—FROM PAGE 27, AES SOFTWARE REPORT

dows. The new tools include Reverb, Time Compress/Expand, Multi-Tap Delay, Chorus, Pitch Shift and Delay/Echo. Steinberg also added DirectX tools including PitchBandit and DeClipper, designed to remove digital clipping distortion. Mark of the Unicorn's eVerb plug-in, included with Digital Performer 2.11, provides a highly intuitive graphics interface for acoustics modeling or setting and adjusting reverb parameters. And Merging Technologies announced the NR-1, a plug-in from noise-reduction specialists CEDAR.

Several companies were offering wares in the Internet audio processing area. Waves showed the Galim ATP, designed as an all-in-one system for live Internet broadcast: The rackmounted PC-based unit includes extensive audio preprocessing options (via Waves plug-ins) and real-time conversion to multiple Internet streams at varying bit-rates and formats. Liquid Audio showed the latest versions of its products for audio streaming (Dolby Digital format) and music commerce on the Web, including Liquifier for Pro Tools and the TEC Award-nominated Liquifier Pro. I-Media Audio showed MPEG Pro, a conversion program supporting MPEG 1 and 2 formats for applications including Web streaming. The stand-alone Windows 95 program will soon be joined by a TDM plug-in for the Mac. Finally, Telos showed a suite of Internet audio hardware and software, including the Omnia.net audio preprocessor, the Realtime Internet Audio Encoder (MPEG Layer 3) and the mp3 Producer Software Encoder.

#### WORKSTATION NEWS

Ensoniq announced it would begin shipping PARIS, an expandable workstation system that combines a full set of desktop audio editing and mixing capabilities with a dedicated 16-channel hardware controller. The company showed the cross-platform package running under both Mac OS and Windows 95. Support for third-party plug-ins has yet to be finalized. Steinberg introduced NUENDO, a mixing, editing and processing environment for post-production applications, featuring native processing on the Silicon Graphics platform. The package offers real-time, floating-point DSP, integrated destructive editing and a networked interface. Up to 32 channels of 24-bit ADAT I/O are supported, as are sampling rates up to 96 kHz.

Not to be accused of standing still, Digidesign debuted its new Pro Tools 2.4,

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Steinberg's Nuendo runs on the SGI platform.

which offers 24-bit recording, editing and playback, and 24 tracks from a single core system (an upcoming free software release promises 32 tracks), plus 24 channels of I/O from a single core combined with two of Digidesign's new 888 24 I/O Interfaces.

Creamware announced TDAT16, an enhanced version of its tripleDAT software. TDAT16 is a 16-channel PC workstation combining powerful real-time software features with a PCI board offering two interfaces software-switchable between 8-channel ADAT and 2-channel S/PDIF, plus stereo analog out. Meanwhile, Sonic Solutions



MetaSynth uses colors to represent aspects of sound.

continued its recent emphasis on the emerging DVD format by announcing Sonic Studio DVD, a DAW designed specifically to premaster audio for both DVD-Video and the yet-to-be-defined DVD-Audio format. The company also announced the Advanced Audio Alliance, a group of audio facilities and record companies promoting high-fidelity audio for DVD, and a direct interface for the use of third-party D/A converters with Sonic workstations. In addition, Sonic demonstrated a recording, editing and playback system based on Sony's Direct Stream Digital format.

WaveFrame debuted its model 408, a Pentium-based multichannel (up to 24-track) system designed for audio-for-picture applications. Features include Sony P2 and ES bus control, LTC and VITC sync and forward and backward lock at any sample rate. Complete systems start at \$10,000 for a basic 8-track/8-analog-I/O version.

Version upgrades of popular workstations offered exciting new features. Cakewalk Pro Audio Version 6.0 adds time compression/expansion, formant-preserving pitch shifting, support for Microsoft DirectX audio plug-ins and a suite of effects to its feature list. Soundscape's SSHDR Version 2.0 is now available with Windows NT drivers, and can now run across a 10Mbit/sec Windows 95/NT network. Also new in V.2.0: TC Works, TC Electronic's new plug-in company, announced a reverb plug-in for the Soundscape platform. WaveFrame released Version 6.2, which boasts faster waveform display, improved network and file interchange support, as well as support for multi-channel (AES/EBU pairs) digital I/O.

#### MORE COOL DEBUTS

Newcomer Metric Halo Laboratories introduced SpectraFoo, a virtual, con-

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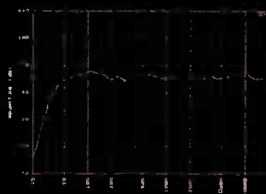
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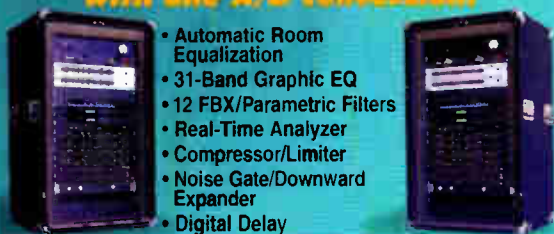
It used to take a whole room of electronic gear to do a fraction of what your palmtop computer can do. Now Sabine brings the same quantum leap in processing power (and price!) to your big racks of audio gear.

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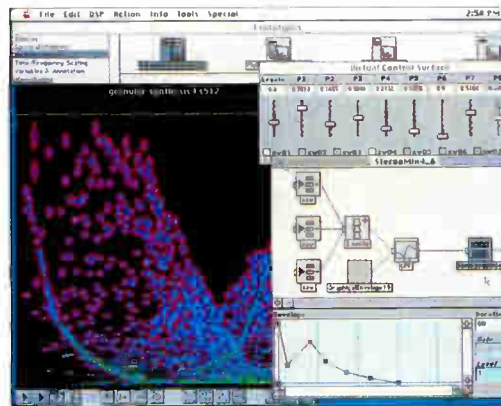
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*Kyma is a graphics-oriented sound design/synth package for Windows.*

figurable rack of instruments offering real-time audio analysis, including metering, spectrum analysis, power, envelope and phase information, and an oscilloscope. Arboretum Systems and U&I Software showed MetaSynth, a graphic sound design/composition package that uses a variety of synthesis technologies in conjunction with an Image Palette, which allows users to literally paint with sound. And Acoustic consulting firm Pilehner Schoustal Inc. offered acoustiX, easy-to-use room optimization software geared toward small rooms/project studios. Symbolic Sound Corp. showed Version 4.5 of Kyma, its graphics-oriented sound design/synthesis package for Mac and Windows. This latest upgrade features real-time spectral analysis, analog and granular synthesis, enhanced MIDI functions, plus an updated interface and revamped manual.

Besides having the coolest swag at the show (black berets with its logo), Sonorus introduced STUDI/O, a 16-channel PCI card for Windows 95 platforms, featuring two 8-channel, 24-bit ADAT optical interfaces (software-configurable for S/PDIF I/O), 18-bit stereo analog monitor outputs and an optional sync backplate providing ADAT timecode input and Word Clock I/O. New from Power Technology were DSP•FX-SC, a 2-in/2-out PC card offering 32-bit floating-point DSP, and the powerful Monolith expansion chassis that allows the use of up to four DSP•FX-SC cards.

Space limitations allowed us to list just a few of our favorite hardware and software debuts at AES here. Check out our newly expanded Preview section for ongoing coverage. ■

*Philip De Lancie is Mix's media & mastering editor. Sarah Jones is assistant editor of Mix.*

CIRCLE #022 ON PRODUCT INFO CARD

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# BERNIE GRUNDMAN

## MASTERING ENGINEER WITH A JAPANESE CONNECTION

**B**ernie Grundman should require no introduction to *Mix* readers. His name has become synonymous with the art and science of mastering for vinyl, CD and now multiformat media. His Hollywood facility, soon to be relocated a block north to a larger, custom-designed, five-room complex, was reported to be responsible for approximately 30% of last year's U.S. chart recordings. Following his 15-year tenure with A&M Studios, in 1984 Grundman opened Bernie Grundman Mastering, which has grown to become one of the largest such facilities on the West Coast. Earlier this year, he and his partner, Karl Bischof, opened a new mastering room in Tokyo.

Born in Minneapolis, Grundman moved to Phoenix at the age of 8. As a teenager, he was a hi-fi enthusiast and worked part time as a drummer for groups throughout the city. By the time he was 19, he owned and operated a jazz club. In 1965, after serving in the Air Force Electronic Countermeasures Division, he began working as a second engineer for a small studio in Phoenix. In 1966, Grundman relocated to Los Angeles, where he became a mixer, mastering engineer and maintenance technician for Contemporary Records studios. In 1968, he founded A&M's mastering division.

"Mastering," the soft-spoken Grundman says, "is basically post-production for the recording industry—the final creative step before delivery to the manufacturer for mass production." All of his rooms feature equipment that has been hand-built or highly customized. Custom consoles are designed and built in-house using all-discrete electronics, with 10-band graphic EQ. Digital mastering is done through a Harmonia Mundi BW102 console system and Apogee converters. Studer A80 analog decks are customized to handle 14-inch



PHOTO: DAVID GOGGIN

reels and feature all-discrete playback electronics. Modified Scully lathes are controlled by Compu-Disk 80 Mastering Computers with Haeco/Westrex cutting heads. Monitoring systems comprise modified Tannoy two-way cabinets driven by very rare Crown CD-300 power amps without coupling capacitors.

Grundman has received six TEC Awards for his mastering work, and Bernie Grundman Mastering has won the Outstanding Mastering Facility award six times also. He secured awards in both categories at the recent ceremony during the AES convention in New York City in late September.

*You got your start in 1965, working in Phoenix as a second engineer/gofer while attending Arizona State University.*

Yes, I relocated to Hollywood the following year to work for Contemporary Records, a jazz label that had its own in-house recording/mastering facility. Contemporary's one-man studio on Melrose meant that I had to handle everything from the tracking session through

disc mastering. Most of my time was spent in the mastering room—mainly because Contemporary did a lot of direct to 2-track recordings. Many times they needed extensive adjustment and rebalancing. Lester Koenig, the owner of the company, and I would sometimes spend two days cutting a set of lacquers—we had to go through them and decide how we were going to handle each individual cut. Remember that a disc side is cut in one continuous take; you cannot stop halfway through like you can nowadays with CDs.

*Was it useful having two people working in the cutting room? Being able to work together at the console to handle the complex EQ and level changes during the cut?*

You had to watch the lathe very closely and do the spreads [opening out the groove spacing between songs] by hand because it wasn't automated. It was a real learning experience for me because Lester was probably the biggest perfectionist I ever worked for. He taught me a lot of tricks on how to use equalizers effectively. For example, if you have a bass and trumpet on one channel, and you need more trumpet but you

BY MEL LAMBERT



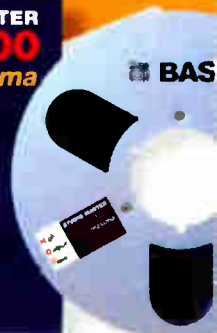
# Al Schmitt

Photo: Alain McLaughlin Studio: Capitol Records

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**BASF**

don't want more bass, with the equalizer you could be lowering the bass, but with the level control you could be raising the level. Little odd things like that were very effective.

*Would you ever bleed an equalized version of the left channel into the right?*

Yes. It's interesting that you would think of that because I don't recall many people doing anything like that, but Contemporary had a special circuitry that was built into the [mastering] system just for that purpose. You could bleed over different frequency bands, then make them mono. If you wanted to make the drums more in the center, for example, you could take just the cymbals and put them in the center and fill them out. That was a very interesting feature we had at Contemporary, yet I've never heard of it being done anywhere else. Of course, nowadays everything is mixed differently.

*In '68, you went to work at A&M Records' new facility on La Brea. What was the appeal?*

I'd been doing a lot of work for the label even before they opened the studio complex. Contemporary was not



Bernie Grundman and Karl Bischof

doing many new recordings, and that's where I started to get my reputation. Lester, to keep me busy, would open up to a selected few mastering clients because the mastering was fairly state-of-the-art. So I was doing a lot of outside mastering, primarily for Elektra and A&M Records; I got to know everyone at A&M very well. When they were planning to open their own studios, I

saw it as an opportunity to move up in the field. Lester wasn't very happy about it, but he also understood that I was ambitious and wanted to get ahead. It was a terrific opportunity. I told A&M that I wanted to work for them, and they hired me right away. If I ever had to work for anyone else again, I'd work for Herb [Alpert] and Jerry [Moss, co-founders of A&M Records].

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**INSIGHTS**

*By this time you'd given up recording as such and were specializing in mastering?*

Contemporary only did a few albums. I did some moonlighting but soon realized that if I was a mixer, especially just starting out in Hollywood, I would have to do a lot of projects that I might not really care for. Even though I loved audio and the engineering part of it, I realized that as a mixer you spend two to three months recording and mixing a project, so you should have a *passionate* interest in what you were working on. I realized that in mastering you could have somewhat of a normal life.

*After 15 years with A&M, in 1984 you opened your own shop on Sunset Boulevard and put your name over the door. A brave move, I would hazard?*

When I decided to open this facility, I firmly believed that equipment selection was *vital* to any mastering operation. As everyone knows, tapes that are cut flat to a reference acetate or CID-R in various rooms will sound very different from one another. Every electronic component in the signal path is going to alter the final sound we deliver to the

vinyl or CD [manufacturing] plant.

*Do you think that it takes a certain temperament to be a mastering engineer?*

Yes. For disc cutting, you need someone who can take a lot of frustration. That's also true of mixing, but—if you do it right—there's a lot of tedious detail with mastering. Even now with CDs, we have to maintain a certain level of quality throughout the project and [provide] real good documentation of everything. Unlike mixing, where it's all memorized in a computer, we have to do everything in a repeatable way. We have to be very clear on every aspect of what we've done on a project so that we can duplicate it a week later if that client wants to come back and change one little thing on one tune. This repeatability brings pressure

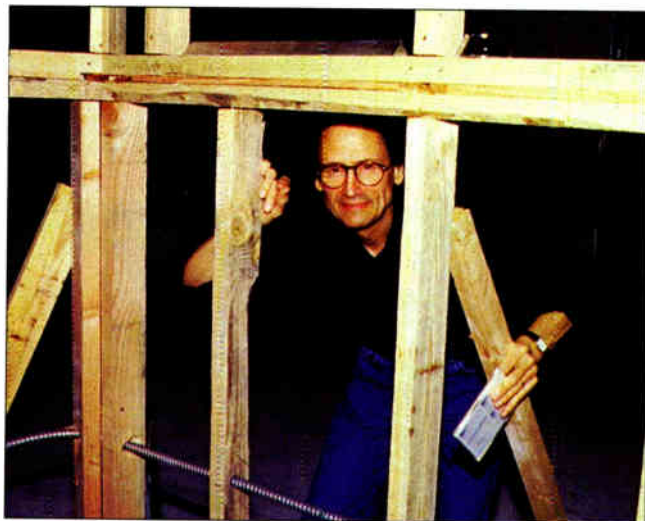


PHOTO: DAVID GOGGIN

*Grundman is putting together a new five-room mastering complex, which will open next year.*

and anxiety because we really want to maintain a consistent quality level.

*How would you define, in a couple of sentences, the role of a mastering engineer? I see it as overseeing the quality-control aspects and bringing a degree of consistency to an album project. Would that be correct?*

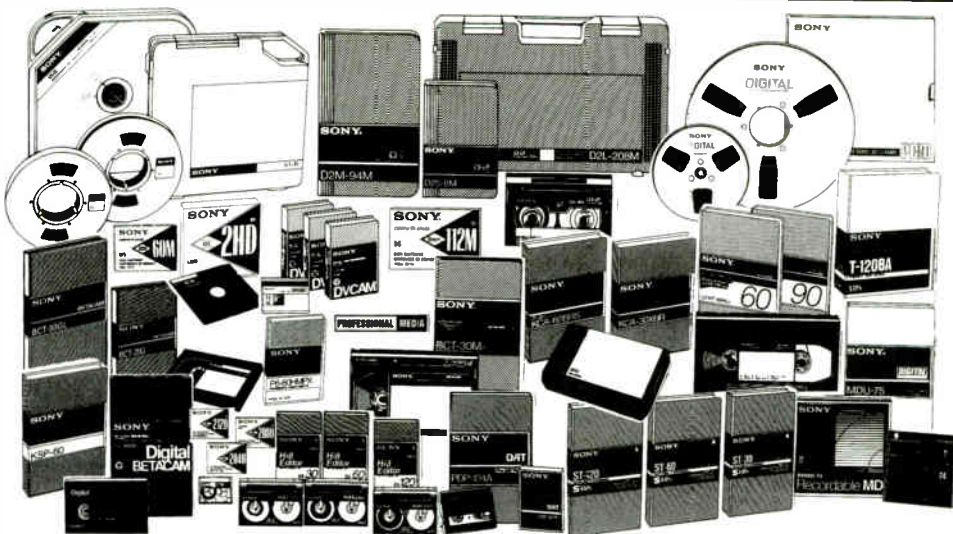
One of my pet statements about mastering engineers: They are the *last cre-*

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## INSIGHTS

ative step of the process and the *first* step of manufacturing. Because we make a master that is only data transferred onto a CD glass master, really we start the manufacturing process. Our product is the final finished album that the customer is going to hear.

Now, knowing that, producers and artists that come in get real sober. They've been in the studio playing [the mixes] really loud and making themselves feel good. But, because they've been living with their project for months, they really haven't taken it to someone who's heard many different recordings—the best and the worst of just about any kind of music you can think of. They really value the objectivity that a mastering engineer can offer them.

*What tools can you bring to that improvement process? Perhaps the track sounds a shade dull, a little thin?*

This often happens with a client I haven't worked with before; they may have been listening on extra-bright speakers. It might be difficult for them to adjust and relate to my monitors, however. I know my monitors, so it then becomes a matter of them trusting me, but only up to the point of them hearing the first ref. Then they can go back and listen on a system they're familiar with and pass judgment on whether or not I did something to improve the recording. At the same time, they're learning how it sounds in my room, relative to their speakers.

*What other things are you listening for? What do you bring to that mastering process?*

My experience of having listened to a lot of music. There's a lot of things I listen for. Usually, if it's poor quality, the detail isn't very good—there might be a little distortion in there, a masking, smearing of the sound; all of these things could be present. Also, the spectrum balance could be way off. A common thing we find is that people try to get a lot of energy out of the bottom end, and they muddy everything up. They've got a lot of bottom end, but not good, *defined* bottom end. [Elements] that don't have good transients never come out of the speakers; you can just keep on pouring low end, but it doesn't come at you. You want the sound to have a presence, to come forward.

*What might be the cause of bottom end that just keeps getting louder but doesn't have the energy that you want?* For one thing, the cleaner the tape, the

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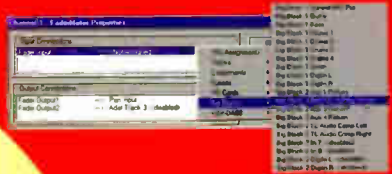
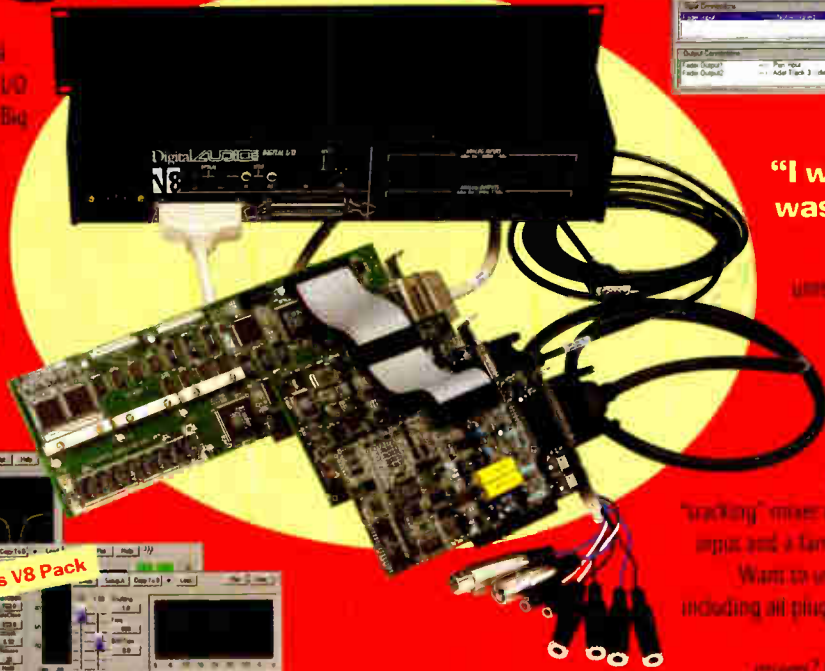


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ally comes back out because it's been masked by too much of the resonance in the bottom end. If you get rid of some of that resonance, you actually expose the leading edge of the instrument.

But we're dealing with a project that's already mixed, and it might have certain instrumentation that's really difficult to deal with. If you rearrange it too much, you're going to mess up too many other aspects that are more important than even the bass, like the vocal. You have to be careful. Mastering is definitely a compromise situation. *How much of your work is cutting vinyl masters?*

Actually, there's been a rebirth in vinyl. We still have to cut one or two sets of lacquers whether the album sells one or 200,000. All three of our rooms have lathes.

One of the reasons I'm so busy with disc cutting these days is that I've been working with Classic Records, who are reissuing a lot of the historically famous recordings that collectors and audiophiles are interested in. Just about everything is issued on vinyl [as well as gold-plated CDs]. If you take a lot of time and care with making a

—CONTINUED ON PAGE 193

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more that sound is going to move out in front of the monitors instead of staying way back. Because of the transients, you've got a nice "snap," or movement of the air. The transient is the main identifying aspect of the wavefront.

One thing a lot of people don't understand is that to make a bass instrument or kick drum be real present and sound loud—even though it doesn't have a lot of bottom in it—is the high-end part of the signal, the transient part. Even though it's a bass instrument, it's got high end in it because of the attack of the transient. They might want to boost it in the mids—2k, 3k, 4k, 5k—to give it a nice definition. But it's also a balance there. You want the instrument to sound realistic; you don't want to have it be all transient, either, because then it's just popping at you.

*If you heard a track that lacked that clarity, what would you reach for on your mastering console to bring it out?*

Usually, it's too massive. What you can do to help a recording like that is take the bottom away. It sounds like an odd thing to do, but if you take the right area away, you expose the transient—it actu-

## GRUNDMAN MASTERING GEAR

The following is a list of what you'll find in Grundman's mastering rooms, here in the U.S. and in Tokyo.

### Analog Equipment

- Custom-built, 2-channel analog console (switchable A/B sources) with all-discrete electronics, eight custom-designed discrete 10-band equalizers, passive filter, passive equalizer.
- Modified Aphex Dominator II limiter, custom peak limiter.
- Dolby Cat. 22, Dolby SR and dbx analog noise reduction, in custom I/O rack.
- Studer A80 mastering deck, modified to accept 14-inch reels, with custom discrete playback electronics.
- Various outboard equipment.

### Digital Processing Equipment

- Harmonia Mundi BW102 signal processor and interface, with AES/EBU- and Mitsubishi-format

I/Os, digital equalizer, digital limiter/compressor, sampling frequency converter, plus D-to-A converters for preview delay.

- Apogee AD1000 A-to-D converter, DA1000 D-to-A converter, UV-22 "Super CID" Encoding System.
- Various outboard equipment.

### Production Equipment

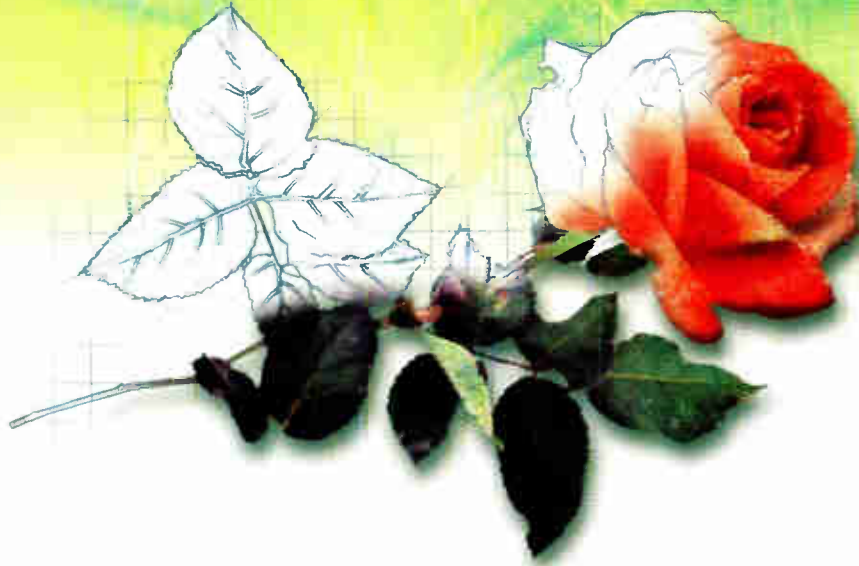
- Sony BVU-800, BVU-800DB, DMR-2000 and DMR-4000 ¼-inch U-Matic video decks.
- Sony PCM-1630 digital processor.
- Mitsubishi X86HS, X86 and X80 digital tape machines.
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- Yamaha K-2000 analog cassette decks.
- Nakamichi MR-1 analog cassette decks.
- Ampex ATR-102 ¼- and ½-inch analog decks.
- Modified Scully cutting lathe.

—Mel Lambert



# Romance

[but calculated]

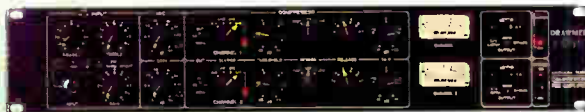


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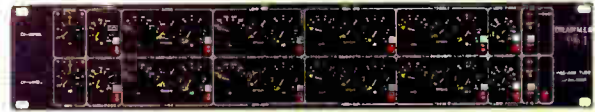


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# **Ray Charles**



**by Barbara Schultz**

**W**hat is there for little me to say about somebody whose nickname is The Genius? That's apparently how singer/songwriter/producer Dave Alvin felt, too, when chance landed him in the same freight elevator Ray Charles was riding in some years ago in a San Francisco hotel. Alvin stood silent through the few minutes' ride, thinking of all the things he *could* say to thank a legend for all he's given to

American music: how many musical and social boundaries Ray Charles helped blur; how he managed to make songs of every genre his own so perfectly that he turned every composition he touched into a unique gift for his audience; how many other great artists he inspired to take risks and get to the heart of their craft.

**GENIUS  
& SOUL:  
THE 50TH  
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COLLECTION**

ILLUSTRATION: DAVID KRAMER

Alvin didn't say anything to Ray Charles, but his memories of that ride form an appreciation that is included in the liner notes to *Genius & Soul: The 50th Anniversary Collection*, a five-CD boxed set released by Rhino Records this past fall. This box represents the first time one label has been able to offer a collection that spans Charles' entire career. Songs range from early Swingtime singles ("Kissa Me Baby") to his breakthrough hits with Atlantic ("I've Got a Woman," "Hallelujah I Love Her So") and ABC-Paramount ("Georgia on My Mind,"

"Unchain My Heart") and on through more recent performances: the version of "Shake Your Tailfeather" he did for the *Blues Brothers* soundtrack, and later duets with Chaka Khan, Lou Rawls and Willie Nelson. Like Alvin's essay, the box is as much an homage as it is an explanation of Charles' accomplishments: It would be impossible to make a comprehensive statement about The Genius' work, but this collection pays great tribute to Ray Charles, in all of his phases and styles, and in all of his glory.

*Genius & Soul* was made possible

largely through the efforts of Atlantic's Ahmet Ertegun, who had already cut a deal with Rhino to release Charles' Atlantic material. But Charles owns the master tapes and publishing rights to all of his post-Atlantic recordings. Ertegun suggested to Charles that Rhino had the resources and the creativity to produce a meaningful collection. Charles then forged a deal with Rhino, with the stipulation that none of the masters he owns would leave the archives at his own R.P.M. International Studios, where they are kept and where many of his



Above: Engineer Terry Howard (right) worked side by side with Ray Charles and assistant engineer Patrick Callahan on *Genius & Soul*.



The Genius in his early years

RAY CHARLES PHOTO: STEVE SCHAPIRO/BLACK STAR

Right: One of the masters from the R.P.M. vaults

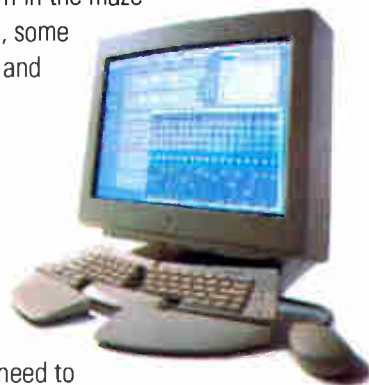


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performances were recorded.

The box was produced by Rhino Records' James Austin, singer/producer Billy Vera and Charles' biographer David Ritz, all of whom worked together to assemble the track list. "It's a hits-oriented package, because you've got to have every Top 10 hit," Austin explains. "But you also want to give that glimpse of Ray in all of his aspects, because how many people can do country, blues, jazz, soul and R&B, and classic standards and pop, and do them all so well? So we really tried to be diverse." Austin also wrote an intro to the package's extensive liner notes, which include an excellent biographical essay by Ritz, plus Alvin's anecdotal one, writings by Bill Dahl on Charles' sidemen and Jerry Wexler's original introduction to *The Ray Charles Story* (Atlantic, 1962). There are also short quotes sprinkled around from industry luminaries such as Stevie Wonder, Buck Owens, B.B. King and Charles himself: "Every music has its soul. If you're really sincere and surrender to it and explore it, it's all soulful."

Because Charles wanted the work on the masters he controls to be done in-house at R.P.M., the task of locating and transferring the tracks ended up being split between two engineers. Bill Inglot, who has done a great deal of this work for Rhino since the mid-'80s, researched and transferred all of the Atlantic and earlier material ('49-'59, approximately), which makes up a little more than one of the five CDs. Terry Howard, Charles' personal engineer of 14 years, worked on all of the tracks recorded for ABC-Paramount and beyond.

Inglot researched and retrieved about 20 boxes of tapes from Atlantic's archives. "Mr. Charles' recording career began on some labels prior to Atlantic," he says. "Those ses-

sions and the first Atlantic sessions were recorded monaurally, and then there was a progression to recording in 1-inch 8-track and doing mixing to mono and stereo formats." He was assisted by two of the label's librarians, Mike Call and Joey Higuera.

Inglot, who worked on this project at Digiprep in L.A., is reluctant to divulge much about his chosen tools or methods, but he did share a bit of his work philosophy: "When we do our transfers and our EQ, we're trying to be faithful to the original sound as well as trying to take advantage of some newer technology,

but we're also taking advantage of technology that was around in 1954. We're not murdering something because people don't like tape hiss anymore. My personal feeling is you leave things the way they are to an extent. [If you] go through 500 pieces of outboard gear or a hard disk editing system to take off 3 dB of tape noise, what are you really getting? Music needs to be human and emotional and honest, and when you start taking steps to dehumanize it, you're creating problems.

"Basically, we're doing transfers with responsibility to azimuth, with

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responsibility to tape alignment, responsibility to the format they were recorded on, and obviously there's EQ involved, obviously there's compression and limiting, depending on what the program material is. You're doing needle drops against vinyl to make sure you've got the right take, to make sure you have the proper dynamics of fades, because many fades in those days were done while they were cutting lacquers. And you want to make sure that if one of the producers decided to throw a couple of wraps of Scotch Tape around the capstan when it was mastered to

speed it up a little bit that you listen to it and make those same compensations. I think you should be doing as much and as little as possible at the same time, if that makes sense, and you should always be asking, "Is this the right thing to do?"

With all this in mind, the three earliest tracks were the only ones that Inglot determined would benefit from a Sonic Solutions system. These tracks were transferred from 78s by Barry Hanson (aka Dr. Demento) and de-noised by Bob Fisher at Digital Domain. "Bob knows what my expectations are with this work," Inglot says. "I try to have longstanding relationships with people because I know what wavelength they're on." Final mastering of the material Inglot worked on was done by Dan Hersch at Digiprep.

Terry Howard, who transferred the rest of the tracks, is a self-described old-school engineer/tech whose client list has included Barbra Streisand, Fleetwood Mac, Stevie Wonder and Tom Jones. He's been through three major studio changes with Ray Charles, and his responsibilities at R.P.M. include recording sessions, maintaining the gear, and cueing things up for Charles, who records a lot of his own vocals. "A lot of people think I do all the engineering work here," Howard says, "but Ray does a lot of it himself. A lot of times, I'll leave him for the day, and he'll put down vocals by himself and then put his piano parts down by himself, and all I did was set everything up."

R.P.M. is equipped with Rogers LS5/8 main monitors with Quad 405 amps. Howard says that these speakers, which were custom-modified to meet BBC standards, are the most accurate he's ever used. Tape machines include two Studer A827 analog recorders, a D827 digital machine and a Sony 3348 PCM digital machine. The console is a 52-input Quad 8. "We got the last Quad 8 board manufactured before Quad 8 went of business," Howard says. "Mark Flemming custom-designed it for Ray Charles, both in musician specifications and, of course, specifications for him being blind, so that he could operate it. What they really did was eliminate redundancy. There were a lot of switches that would re-route, but Ray wanted a basic board that was more like the old boards—that was more cut-and-dry in terms of

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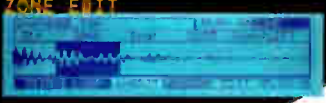
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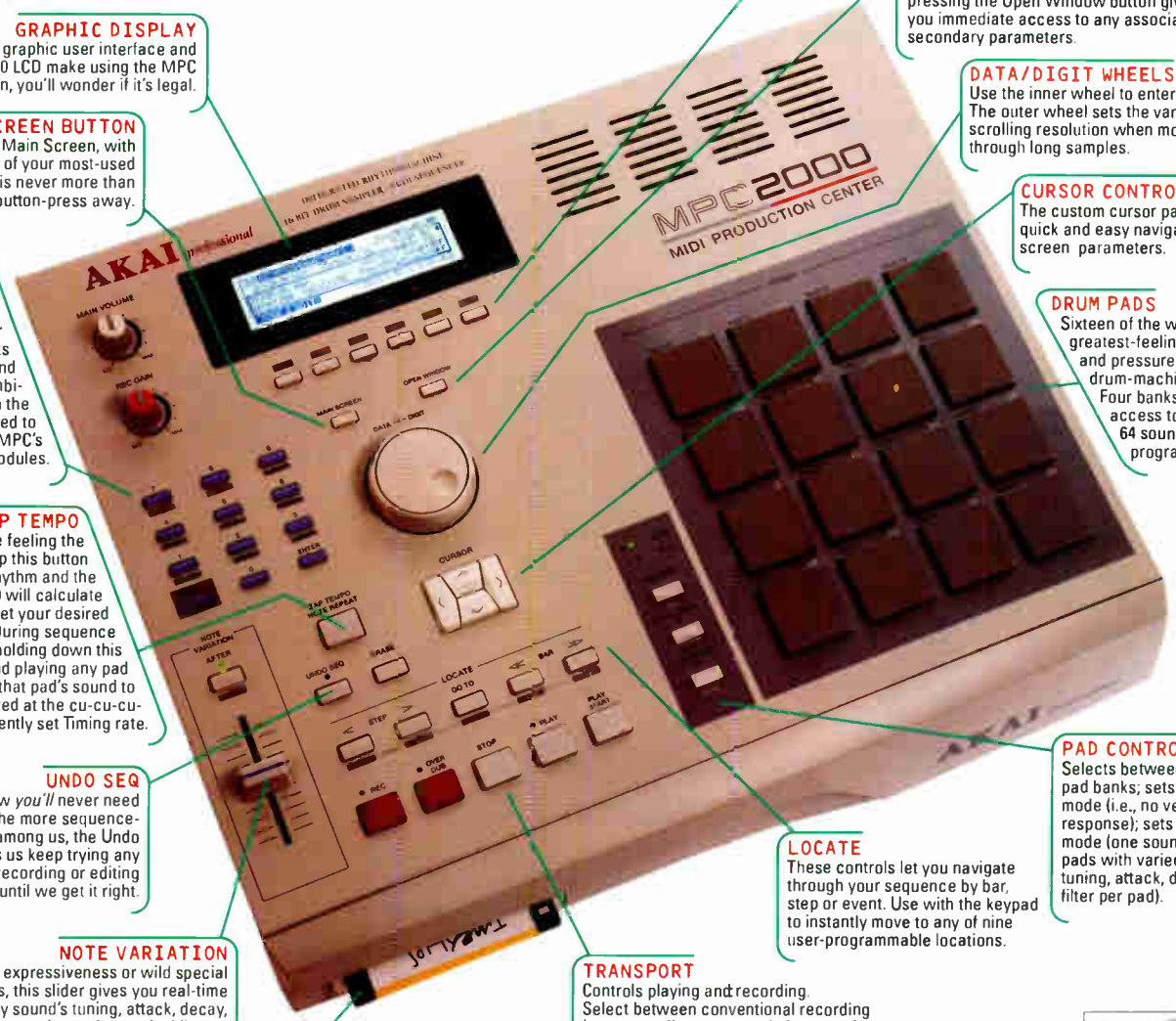
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CIRCLE #038 ON PRODUCT INFO CARD

World Radio History



tion. Howard spent about six months researching source material and transferring the tracks as he went. Charles wanted him to use earliest-generation stereo recordings, whenever possible. "Ray loves stereo," Howard says. "He'd always rather have a stereo take than a mono take,

so that meant more research, because a lot of time when you're looking at old record vaults, you get nothing but the mono record safeties."

For the most part, Howard did find stereo masters in the vaults at R.P.M., but occasionally, it would turn out that the tape they needed



Ray Charles leans over the Quad 8 board in R.P.M. Studios.

signal flow, so we omitted a lot of those switches.

"And as far as it being a musician's board, some of the biggest changes we had done were to the EQ system. Most EQs center around 1,000 Hertz, which is a center bandwidth of 20 to 20k. That's fine when you're a technician, but, like Ray says, you go find me a music note that fits those frequencies. So when we had the EQs set, we had them changed to frequencies that were closer to musical notes."

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was of poor quality or was missing. In those cases, he turned to MCA, where the archives of ABC-Paramount's recordings are now kept. Toi Morimoto, librarian at MCA, helped Howard find the tapes he needed. "Toi would say 'Well, these are copies of copies and they're not going to be that good,' but I said, 'Well, a copy is better than a broken original. Because that was another problem that came up at times: Some of the tapes of the acetate style were literally broken. There were pieces missing and we couldn't even assem-

ble it and get it working. Toi was a big help, because she got us these tapes when we were getting near the deadline to the project. 'The Danger Zone' and 'Unchain My Heart' were found in the MCA vault, and they were in better condition than what we had. We also found the only copy in existence of 'I Wonder.' That song was in stereo, and it was released as two 45s, parts one and two, but we found the original full take. Before we found that, we were ready to take that song off the record."

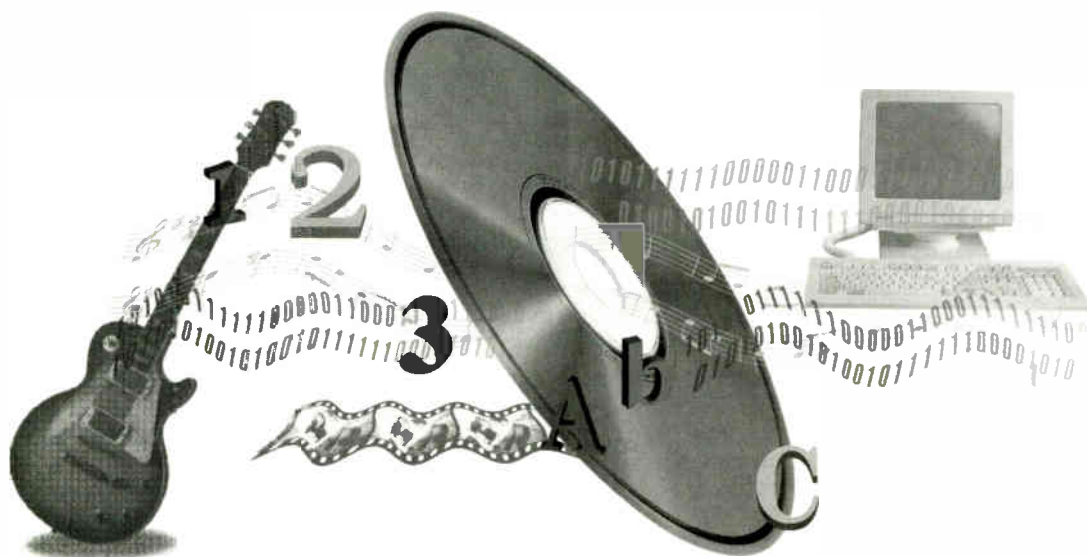
Most of the masters Howard used were 1/4-inch tape at 15 ips. He used two different machines to play them back: either an MCI JH110 or an Ampex 351. "Both are of vintage-quality," he says. "In my belief, if it's recorded on an old recorder, it should be played back on an old recorder. If I knew the tapes came from say Capitol or United Western, places like that, I would play it back through the Ampex. If I knew it was done at Ray's studio after a certain time, when he had MCI equipment, I would use the MCI."

The tapes were transferred to a Studer D424 magneto-optical re-

recorder, which was a new acquisition made specifically for this project. "We put the Studer MO in a straight shootout between the 1630 format, which is the standard for CD, and we also checked it out against the half-inch analog format," Howard says, "and in every A-B comparison, especially at 48 kHz and 20-bit sampling, the Studer gave us the closest mirror image. It was the most accurate."

"Any time I accepted something," he continues, "I immediately dumped it down to the MO recorder, and that was a good process in itself because we had to make sure that all the basic things like the azimuth and phase were in alignment. A lot of the old tapes don't have tones on them, or if they do, they have an arbitrary tone that came out of the middle of nowhere. The tone will come up on your meters at -3, and the music content is all slamming above 3. They don't correlate. So we would adjust the high-frequency and the low-frequency compensation, and not change the color of the original but try to get it in the ball park without having tones to do this with. That took some time in itself."

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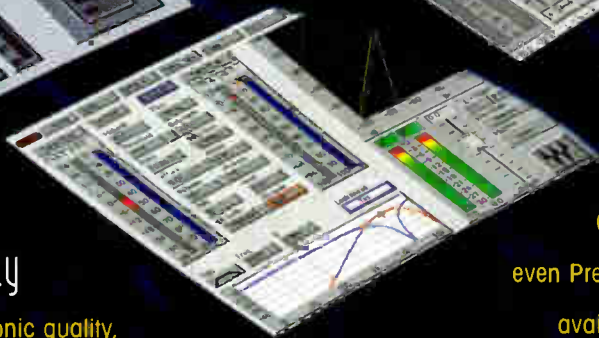
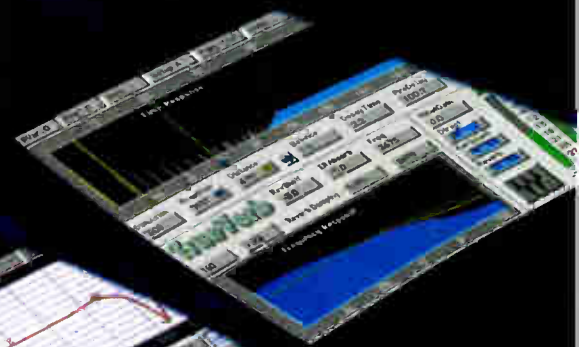
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Also new to R.P.M. for this project was the addition of Balanced Power from Equi=Tech Corp. Howard, of course, wanted as little noise as possible coming from the power supply during the transfer process, and he says that Balanced Power effected a 9dB drop in the noise floor. Equi=Tech's Martin Glasband consulted with Howard and Charles to help them retrofit all of the studio's wiring with a custom-designed 20kVA isolation transformer.

Like Bill Inglot, Howard's main goal was to keep the recordings intact as much as possible, feeling that it was more important to preserve the natural warmth of the original analog recordings than it was to eliminate minor anomalies. But like Inglot, he did find there were a few recordings that needed a little Sonic help, which he got from Bob Fisher, as well. "I felt that he was very gentle in his use of the Sonic System," Howard says, "which we appreciated, because we did have some songs with 60-cycle hum that were too distracting to listen to, and we sent those in. But for the most part, when you're dealing with these old recordings that were done live to 2-track or whatever—stuff before 1970, especially—you really hear the depth of the analog. My thing was to try to keep the integrity of that analog feeling all the way to the end."

After the transfer process was completed, the MO recordings were delivered to Doug Sax at The Mastering Lab. Sax has been Charles' main mastering engineer since 1970, so he was in the picture when a lot of the original recordings were made. "Terry really did a yeoman's job," Sax says. "He chose to go with this magneto-optical recorder and the Studer converters, and I must say I thought he did a very good job. He obviously

—CONTINUED ON PAGE 140

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# MARK KNOPFLER

## GUITAR HERO

In 1978, disco was king. You remember. *Saturday Night Fever* had been released the previous summer, and the top songs of the year were "Night Fever" by the Bee Gees and Andy Gibb's "Shadow Dancing." Even the Rolling Stones were dabbling with the dance floor thump on "Miss You." "Boogie Oogie Oogie" and "Grease" were also hits, while anthemic groups like Boston and Styx helped define mainstream album rock. Punk was flourishing in defiance of musical and cultural convention, and in the midst of all of this arrived a group named Dire Straits, whose thoughtful, imagistic lyrics and clear, lean sound didn't cater to the dance floor or the pomp of Big Rock, or trade on fashionable anger and disenfranchisement.

The brains behind Dire Straits' vision was guitarist/singer/songwriter Mark Knopfler. Knopfler's unique finger-picking style integrated colors of blues, country and folk, as well as melodic traditions from the British Isles, while his way with words turned his songs into artfully illuminated portraits.

Over the years, Knopfler has been part of nine Dire Straits albums and enjoyed a very successful career scoring music for movies like *Local Hero*, *Cal*, *The Princess Bride*, *Last Exit to Brooklyn* and, most recently, *Metroland* and *Wag the Dog*, which stars Robert De Niro, Dustin Hoffman, Woody Harrelson and Willie Nelson. Knopfler has also contributed to the music of Bob Dylan, Van Morrison, Randy Newman, Tina Turner, Waylon Jennings and his close friend Chet Atkins.

Almost two decades and 85 million albums later, Knopfler just continues to get better. His 1996 solo effort, *Golden Heart*, ranks with his best Dire Straits work. For this interview, Knopfler offered thoughtful insights on his artistry and delivered playfully irreverent commentary. He



also put up with some of our chiding. All in all, it was a lot of fun.

*You've done quite a bit of banging out and recording in Nashville over the years. You've recorded and toured with a number of Nashville A-list session players, like Richard Bennett, Glenn Worf, Paul Franklin, Michael Rhodes, Matt Rollings, Chad Cromwell, Eddie Bayers and others. In fact, most of your band comes from there. What initially brought you to Nashville?* Chet [Atkins] was doing an album, and he was using a lot of guitarists from all over the place, and I just got on the plane. The next thing I knew, he was taking me around to the Gibson factory, and we started up a friendship. He is a dear friend. Chet is as good as it gets.

Obviously, with me starting off with roots music and skiffle music...Nashville has always been close to me, coming up with this duality of white and black music.

The gift given to me by the people of Nashville has been one of the greatest things in my life. I've made some lifelong friends, and I have good feelings about the people and musicians.

The first musician that I actually took out from Nashville and took around the world was [pedal steel player] Paul Franklin. I was working on the idea of incorporating the pedal steel into a whole other kind of music. I used it on most of the songs on the album *On Every Street*, employing it in not necessarily a country space, but something quite different, like the title track for example.

*Richard Bennett, who has produced Emmylou Harris and Steve Earle and played guitar on countless albums, is in your band. He's a very passionate player.*

I came to Richard through Paul Kennerley, my particular friend, an Englishman songwriter par excellence in residence in Nashville. Richard is a fearless and serious rocker and a great musician. He

BY RICK CLARK



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**THE MIX INTERVIEW**

has got some fire and attitude. We do down a few vodkas and spit some fire out, when we get talking about music and other stuff. [Laughs] Thankfully, we get on really well, so it's not a question of arguing.

As I'm sure you've been told many times before by other people, country music as such might be some of the guys' bread and butter, but these guys are musicians, and they love to play music, and in many ways, they can play anything. The feeling that I get is they derive a lot of enjoyment from being able to get out of the ordinary little song charts that you have with a country song, as it were, and get something different to do and stretch out a little bit. I love input, and I love it when people get to express themselves and people find their own parts, and so on and so forth.

*So when you are introducing a song to the players in a session, do you explain the protagonist's point of view and give a little background before you begin and give them space to work in ideas?*  
Exactly. How you do it is important. You are addressing a bunch of artists

who are sitting around you. Chuck [Ainlay, Knopfler's co-producer and chief engineer] and the musicians come out, and I sit on a chair in the studio and

**What a poet might  
be able to write  
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In a song,  
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of the space up,  
whereas with poetry,  
you fill the space  
with words.**

play the song on an acoustic guitar to everybody. I play it in one go, which is the test of a song anyway. Depending on the type of song, there are certain

things that you want people to pay attention to and have emphasized.

For example, if you are doing something like "Rudiger" [a song off of *Golden Heart*], you don't tell a Richard Bennett or a Matt Rollings what notes to play; you simply say, "This is too happy. Let's do a sadder one. It's sadness that I'm feeling. I forgot to say that. That is my fault. Can we go on and just do one more, but let's make it more sad? I see 'Rudiger' as a sad person." So they get the point and straight back out... bang...it's there in the first take.

You are not going to be spending a long time just trying to get a track, and I find that to be very exciting and satisfying. In other words, the weak link would probably be me. That, I like. *I've often felt that the most desirable position to be in a band was to be the "weakest link." It makes you work harder. Great players kick you in the ass. They sort of force you to own the moment.*

[Laughs] There is nothing "sort of" about it. In my case, it has got me to fall back in love with playing and learning music and listening to records. Someone like Jim Cox [keyboardist in Knopfler's band] is inspirational. He has thousands



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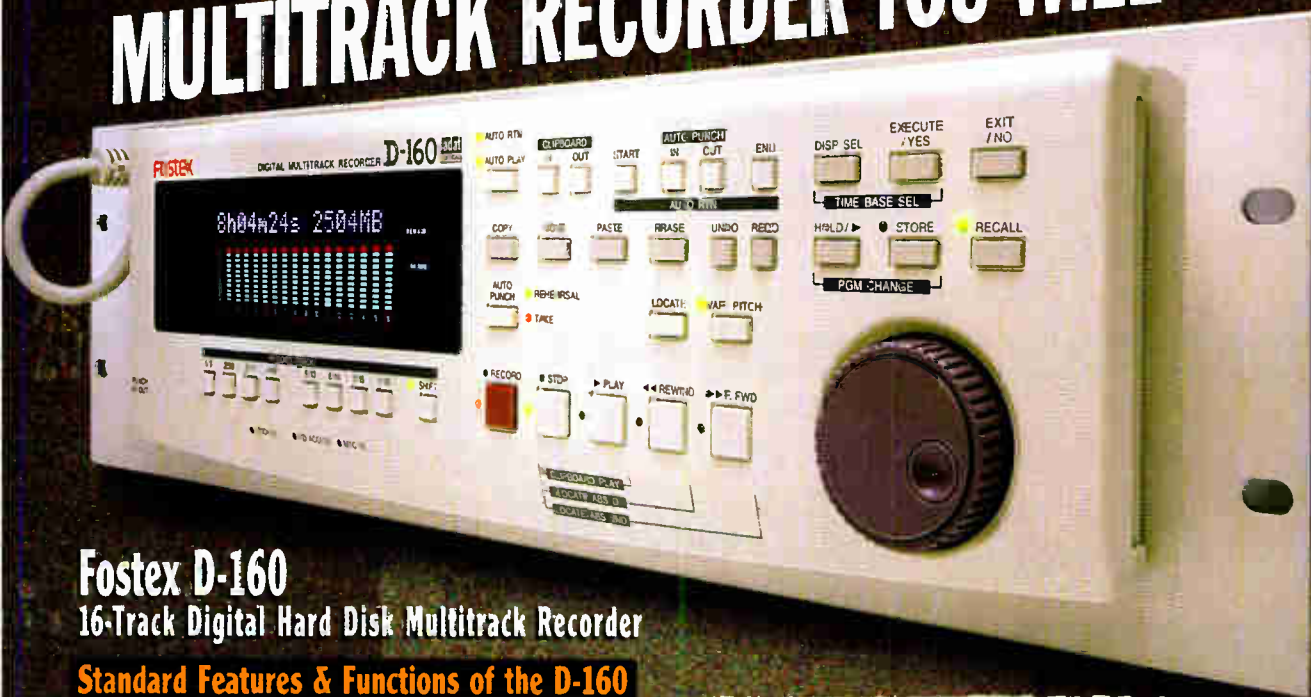


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of records at home, and he knows a great deal about music, and he can play anything from an obscure Hawaiian tune to Art Tatum. It's good to have that element, too. The band gets its "stuff" from all sorts of places, and it's all stuff that is really learned well and there is humor in it.

*What would you say is the mark of a great producer?*

I wouldn't know, because I'm not one. But if I have learned anything, it is that you must let great musicians play what great musicians want to play. I'm not

talking about an orchestra here.

*We're talking about a band situation like yours.*

Exactly. You'd be a fool if you would simply tell someone what to play or tell an actor what to do. A director isn't there to tell an actor what to do. In just the same way, a producer is not there to tell great musicians what to do. That is stupid, and that is not how it works. I've come to learn that. In fact, Chet [Atkins] taught me that.

Any producer who thinks that he is going to be the world's greatest producer, and has no idea how musicians work, might make an interesting first

record, but I can promise you that he is not going to make many more, because you have to understand how musicians work.

*Compared to the average three-minute pop song, your songs are lyrically very intensive. What drives you to write that way?*

I've always liked books, since I was a kid. That doesn't ever really go away.

*Making the leap from prose to conveying story-like portraits in lyric form can be a challenge. It's easy to clutter the landscape.*

What a poet might be able to write on a page doesn't always work in a song. In fact, it nearly always doesn't. It just runs on different fuel. The music takes part of the space up, whereas with poetry, you are filling all of the space with words. It's the same as film music. Sometimes, when you have to do a scene, you don't want to fill the scene up with the music. The music is only part of the message.

*Do you consider yourself a prolific writer?*

No, I'm a lazy sod. I'm am the kind of writer who has to look for a pencil or ask someone if they have a piece of paper. In fact, it's funny about asking for a piece of paper.

"Money for Nothing" is the perfect example of that. I had to ask for pen and paper while I sat down in this mock kitchen display—which was in the front window of this kitchen electrical and appliance store in New York—and tried to write the tune. In the back of the store, all of the TVs were tuned to MTV.

I can't put "songwriter" on a passport, you know. It's kind of embarrassing. I wouldn't know what to put for the occupation: "Jack of a few trades and master of none." I keep telling myself that I ought to be more serious about it, but something about me, and the embarrassing nature of it all, stops me from being completely and utterly committed and serious to all of that.

*What is embarrassing about it?*

Aw, show business, you know. I get a bit uncomfortable with it sometimes. I always thought that the showbiz end is rather fantastic, but I don't suppose it's really me. I suppose that is why I admire actors and comics and people like that, who can...I just think it's a great thing to have, just like singing. I've always admired singing.

*Do you consider yourself a singer?*

No. No way. I've always admired people who can sing like birds.

*But you've always liked Dylan, haven't you?*

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**THE MIX INTERVIEW**

Oh, yeah. Yeah. But that is songwriting—and singing on some things—but I suppose I can sing on some things. Yeah. But we are not Dolly Parton. Do you ever hear Dolly sing sharp or flat?

*Parton has a natural gift, but wouldn't you say that a function of singing is to communicate?*

Yeah. I suppose. I think that is correct. I don't worry about it now, because it's so damn bad. If I worried about it, I'd... *There are a number of so-called technically good popular singers who, in my mind, chew up the scenery with vocal acrobatics and convey very little truth. My guess is that there are millions of people who think you communicate just fine.*

Well, I don't know. I may be communicating, but a pig communicates, too. [Laughs]

*When you listen to classic Dylan records, his voice is often thrown way up loud in the mix. You, on the other hand, seem to bury your voice into the mix, like it's more of a texture in the composite sound.*

That's good. That's very good. [Laughs] The more set in concrete, the better.

Having said that, I've never had an argument with Chuck [Ainlay]. The lovely thing about Chuck, aside from the fact that I've never had an argument, is he is very musical. Chuck is actually highly technical, and he is very much concerned with beautiful recordings, but you are more aware of a musical process, rather than a technical one.

*How did you get into doing music for soundtracks?*

I wanted to do one. I wanted to know what it was like, so I just asked Ed [Bicknell, Knopfler's longtime manager], "Could you write around to film or production companies and ask if they would like for me to do any films?"

Of the two positive responses, one came from [movie producer] David Puttnam. When he showed me *Local Hero*, he had already put "Tunnel of Love" on the roller going out. He wanted to show me how he wanted people to leave the cinema feeling positive, quite rightly. That is how I got into it. Of course, I went away and did far too much far too early in my naive enthusiasm, before the film was actually fine cut. Then they ended up slashing the film, much shorter than it originally

was, and of course they had to cut the music, too.

*How did you handle that?*

I didn't like the way the music was cut, because I had got to know and love a much longer film, which to my mind was a much better film. But the studio wanted to turn the film around three times a night in movie theaters for American audiences, and so I got one of my first lessons then in the realities of the movie marketplace.

*I would imagine that one big lesson you learn doing music for films has to do with the time factor. Unlike albums, where you might take a couple of years, you have weeks or a couple of months to do the music.*

Yeah, but I think you've got to be fair to filmmakers. You can't prance into a film and expect to be treated as if you are the director or the star of the film. You are down the ladder, and that is all right, and you bloody well better get that onboard if you're going to do a film score. You are down there with the sound effects, and I'm perfectly happy with that. That has never done me any harm.

Any singer/songwriter gets plenty of opportunity to express himself, thank you very much. You've just got to be

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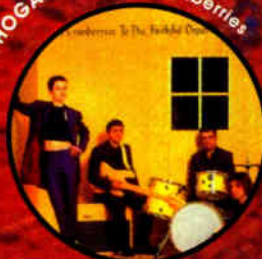
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ready for the slings and arrows of outrageous editing. You've got to be prepared to have your stuff amputated. When I was producing Randy Newman, he expressed it pretty well: "You're a lowly dog doing film scores." [Laughs] *For whatever it's worth, your soundtrack work for the movie The Princess Bride was also the soundtrack for my wedding. It's a wonderful body of music. You might have been hired to create the music for The Princess Bride, and while my wife and I enjoyed the music in the context of the movie, for us, the music became re-contextualized in a new frame.*

I love that. I love that when people tell me things like what you've just told me. It's always a tremendous pleasure to hear that people have used the music for the milestones in their own lives. That is one of the really warming things about doing what I do.

People have told me about using the music for funerals, and good-byes, and births, marriages, birthdays, celebrations, bereavement, comas and awakenings, and entrances and exits, and other milestones in their lives. It's a

wonderful thing. You don't just see music as being on the shelf. People live with it and use it.

When a great sculptor or artist says they use your music to create with again, you are aware that you have dropped something, like a stone in a pool. Circles have gone out and helped the creative process to go on, if you like. It hasn't simply run out of impetus. Every now and again, the ripple goes out and hits something else and sets off something else into motion, or helps some other kind of motion to go on. That always makes me very happy, whether it was a creative act or just something that people use to live with. *The debut Dire Straits album came out at a time when the Sex Pistols and the punk scene were happening. I remember how the debut album cover art, with its clean white austere ECM or Windbam Hill-like presentation, didn't look like a typical rock release. Also, the album sonically felt just as spacious and clear as it looked. Was that whole package part of your conscious vision of your music?*

Absolutely. At that point, if it wasn't Boston and Kansas, it was disco. A year or two later, it was our misfortune to

open for Styx, no less, on a tour optimistically entitled Styx Hit Europe. [Laughs] It was straight out of Spinal Tap, I'm afraid. When Styx abandoned their enterprise after three shows, on the pretext that their hotel towels were too small, my band and I celebrated by emptying my mini-bar. I feel now as I did then: Not one of them was fit to be hired as a baby-sitter. I cracked up when I got around to reading some of their lyrics a few years ago. A song entitled "Angry Young Man" went something like "Angry young man/I don't know why you are so angry/[Laughter] when your future looks quite bright to me" [pause for intense hilarity].

Styx was our first European tour. We had done our first UK tour with the Talking Heads, just to give you an idea of the contrast in music. The Heads were nice guys. We traveled around together in a little mini-bus, and we introduced the concept of changing strings to them.

Anyway, if it wasn't that, it was disco and *Saturday Night Fever* and the opening of floors of Warner Bros. as dance departments. That was the really big thing going on at the time. The punk thing was just starting to go on, too, and

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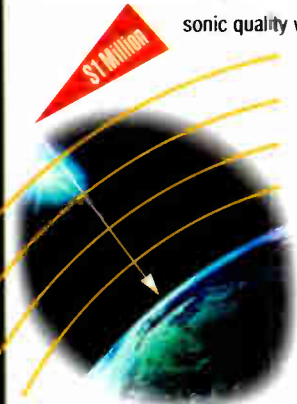
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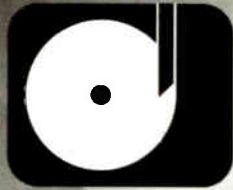


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we played with a lot of those bands. I saw the Sex Pistols at the 100 Club before they were big.

It was really a question of age. If I had been the age of a lot of those kids who were doing punk, that is what I would've been doing. I'd already been playing for years, and I was 28 years old, so it was quite a different thing than being 17. It was just a different deal, and the world is different to you and you are interested in different things, but I loved a lot of that stuff, and I still do. But then I did want to have a stripped-down, four-piece sound.

It's just the same as now. People say, "How can you like this rap stuff?" I love it. I love the blues. I love "I'm a Man." There is no difference. People get the whole thing wrong, a lot of the time.

What I'm trying to say is...musically, things had gone the same way before. Can I tell you about an early punk record, "It's a Bad Neighborhood" by Ronnie & The Delinquents? Wanna know the date? 1954. Who was in Ronnie & The Delinquents? Dr. John. What about the Rolling Stones? What about The Kinks? What about The Animals, from my hometown? What about "We've Got to Get out of This Place"? It's just lads trying to play.

*The guitar lead of "Sultans of Swing" has to be one of the most memorized leads in the world of cover bands.*

Oh, yeah. Even pianists in Holiday Inns have played it, when we have been there.

*What does that do for you?*

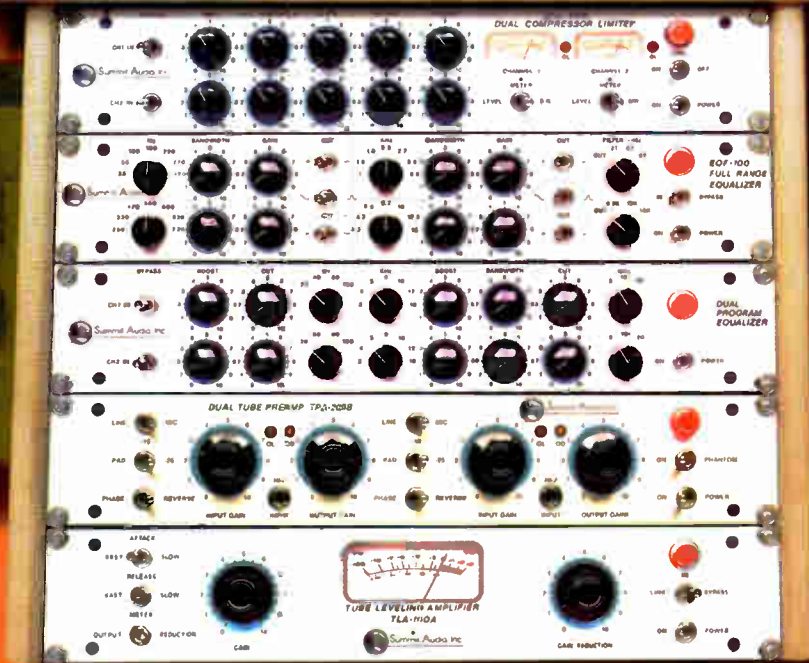
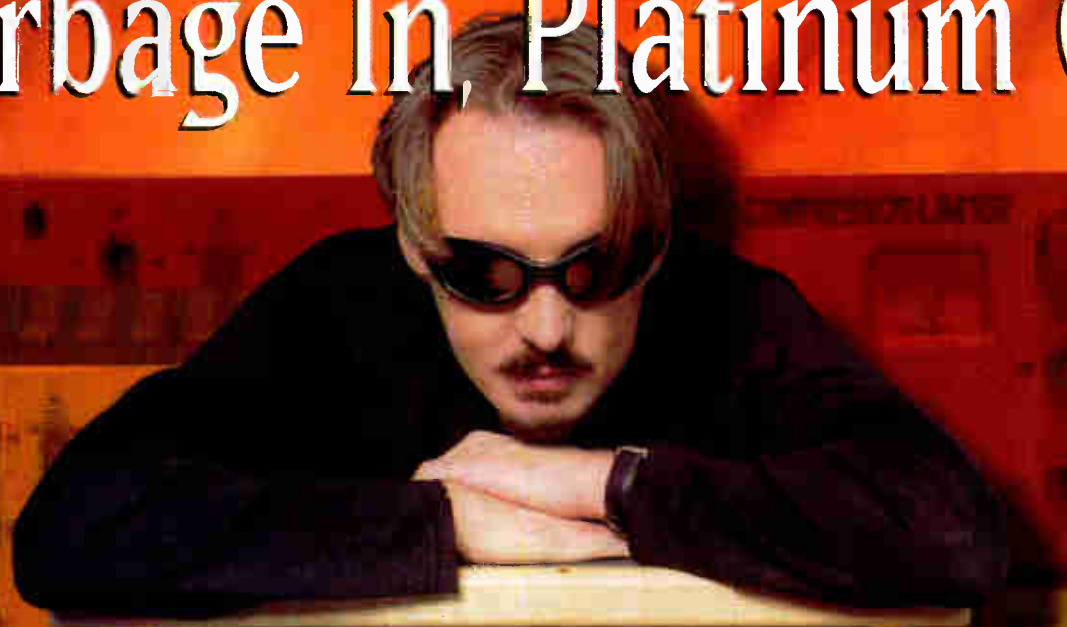
On the piano? At the Holiday Inn? [Laughs] It's a funny thing. I suppose it's kind of a nice feeling, but when you have to play it yourself, you've got to find a place in it that is real for you. You can't simply let it float past the top of your head. You've got to try and find the reality of it and not let it become a party piece or cabaret. It's not always easy.

Chris White [saxophonist for an incarnation of Dire Straits] was telling me about this song called "Your Latest Trick," from the *Brothers in Arms* record. He said that, after that album came out, he couldn't go into a brass shop without hearing that opening instrumental part.

It's the same with "Stairway to Heaven" in guitar shops, but now it's an Oasis song. One of my little boys plays guitar, and he plays an Oasis song, and it's great and I love it. It really tickles me.

—CONTINUED ON PAGE 191

# Garbage In, Platinum Out



## Summit Audio Success Stories

**Butch Vig**, engineer, producer, co-owner of Smart Studios and the drummer for Garbage, relies on Summit gear for all his work. Vig engineered the group's latest platinum album, "Garbage," nominated for three Grammys this year, as well as producing albums for Smashing Pumpkins, Nirvana, Soul Asylum and Sonic Youth.

"Whether I'm working at Smart Studios or I'm on the road touring, I always use Summit tube gear. I particularly like using the DCL-200 Compressor Limiter for tracking vocals. It colors the sound very subtly, while retaining its warmth and transparency. Often I will compress a vocal performance quite a bit.

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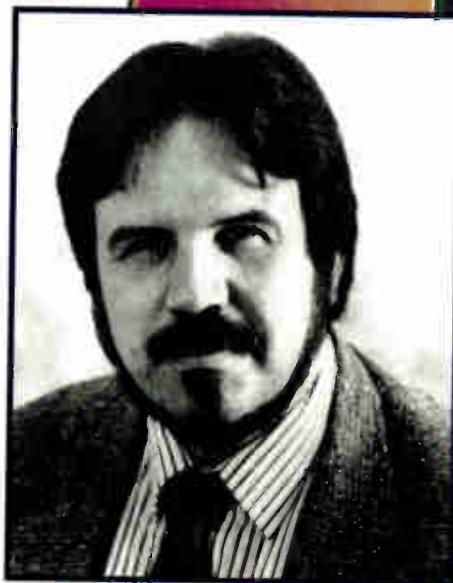
# ANDY MCKAIE

## REISSUE MASTER

Andy McKaie was just another ex-rock critic who'd landed a quasi-adult job when I went to work with him in 1976 at an old-school New York show business public relations firm in a dingy, overcrowded suite of offices near Times Square. The small pop music department, somewhat condescendingly referred to by the older publicists as "The Rockers," was in a bit of a slump at that moment. Having just finished toiling on a long, successful Paul McCartney & Wings tour, the firm was fired by the ex-Beatle for the decision (made by the PR firm's upper management, not by McKaie) to take on as a client a local hustler who was promoting a highly dubious scheme ostensibly aimed at reuniting the Beatles. The idea was for Beatles fans to each send this man a dollar; the accumulated wealth would then be used to convince the Fab Four to get back together.

Despite the loss of the Liverpoolian icon, McKaie (pronounced McKay) soldiered on, always in love with the music, appearing to have an endless appetite for the stuff. McKaie soon moved to much tonier corporate digs as the number two PR person at the then newly formed Arista Records. After a few years McKaie uprooted himself from the Big City to Bend, Ore., where he founded an independent record label that lovingly recorded local acts but failed to find solid national distribution.

Slightly wounded but with enthusiasm unbowed, McKaie headed for the nearest big music town, which just happened to be Los Angeles. By then, Eagles' manager Irving Azoff and his lieutenants had taken over MCA Records, and they knew McKaie to be a tireless and enthusiastic toiler in the PR vineyards. From his MCA PR position he was able to move into the vacant

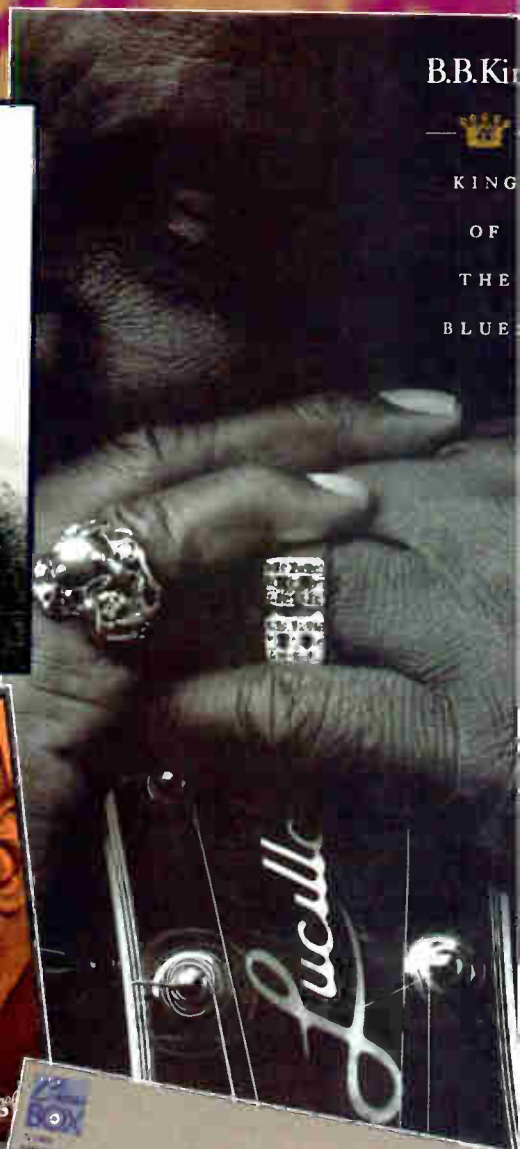


McKaie's remastering projects for MCA include boxed sets from Howlin' Wolf, B.B. King and Muddy Waters.

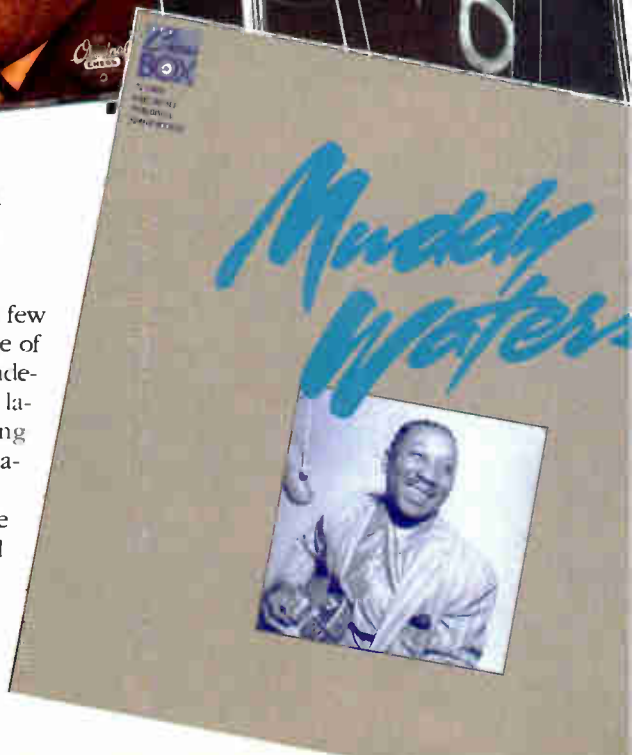
reissue producer's job after a few years. McKaie's been in charge of reissues there for the past decade-plus. He has a wide array of labels to draw from, including Chess, ABC, Decca, Duke-Peacock and AVI/Excello.

McKaie's decision to move on from the harrowing world of pop music publicity has been a wise and fruitful one.

BY ERIC RUDOLPH



B.B. King  
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In addition to winning Grammys for *The Complete Decca Recordings of Billie Holiday* (1991) and the *Chuck Berry Chess Box* (1989), McKaie, now vice president of catalog development and A&R for the re-dubbed Universal Music Group, has overseen the release of Chess boxes from Muddy Waters, Howlin' Wolf, Willie Dixon and Bo Diddley, and sets by such artists as Lynyrd Skynyrd, Steppenwolf, Buddy Guy, The Mamas & the Papas, Elton John and many, many more.

*What is your take on what you can do with the CD form and how it differs from what came before?*

What you master is what you get on this medium. CDs are a very transparent sound carrier. You'll hear all the way through. You don't hear the carrier, the aluminum, as much as you hear the vinyl—or, rather, as much as you hear the vinyl modifying the sound. Because of the transparency of CDs, you can't just transfer any old analog copy, be it a piece of metal, acetate or disc, EQ it and say it sounds pretty good, because the various inherent defects are not being masked by the vinyl. You have to start with the best available source, preferably the original master, and if there are flaws, you work on them using whatever resources you have, including CEDAR and Sonic Solutions.

Now most companies have a pretty good idea of what they're doing. Most labels, big and small, have access to CEDAR and Sonic Solutions systems, even if they don't have them in-house. Most people seem to have a pretty good understanding of the nature of EQ'ing for this medium. People seem to understand the nature of the degradation of mastering at 20-bit and going down to 16-bit. This knowledge now permeates beyond the engineers; the label executives understand it, and that's important because they pay the bills.

*Walk us through the process of doing a reissue, from the very beginning.*

The idea can come from anywhere. The palette starts with the music that we own, but it goes from there. I come up with the concepts mostly, but they also come from the top executive offices, and outsiders also call me with ideas. Staffers and reissue producers I work with bombard me with ideas, and I keep an ongoing log of the most valid of them.

I put together a schedule prior to a fiscal year. Most of what I project comes

directly from our vaults, but by no means is everything we reissue drawn from the music we own. I did a Curtis Mayfield & The Impressions package where the entire second CD was licensed in. On the second CD of our Joe Walsh anthology, only three songs came from our vault; the rest was licensed. We also licensed the entirety of Muddy Waters' *The Complete Plantation Recordings* from his estate and from the Library of Congress.

The concept determines what you're going to do, and certainly the concept is determined by what is available. Certain people and labels refuse to license

Even before the release is approved, we put the track list together; either I do it myself or I hire a compiler. I also have a liner notes writer in mind, and I get them going as soon as we get the approval. Of course, putting together the masters is the key element.

The vault, where all of our masters are stored, is about a mile back on the lot here at Universal City. We have another vault, for older multitracks, in a former bomb shelter facility underground in Pennsylvania. Both vaults are high-end, climate-controlled and computerized. The one here we share with the film company. The Universal studio tour goes by it everyday, and people have no idea what it is. It's just a nondescript, monstrous, airplane hangar-like box.

When we had a big fire on the lot, the guy who runs the vault grabbed the fire captain and said, "This is the vault; this is where you fight the fire from!" The fire came just up to the wall of the vault and lapped at it! Of course, the vault is so secure it would've taken a great amount of heat and time for the fire to go through the wall. But if that had happened, it would've turned on the internal sprinklers. Now, that might not have been a tragedy; the whole vault is built on these huge rolling shelves about two feet deep that go up to the ceiling. At the end of the day they are all rolled together and locked, and they form a huge metal frame. The water might've seeped through, but there likely would not have been great damage. It's withstood everything, including earthquakes.

I put through a work order to the vault and they send me boxes of tapes, everything they think I might want. Generally, they know where things are. But sometimes there isn't everything I want in the first box of tapes. They might've missed a stereo version that I know exists, or pulled the second but not the first, missing the actual master, for whatever reason.

Sometimes with further input, the vault staff will find everything, and sometimes I have to go and do a hand search. In the bad old days before everything was computerized and we hadn't sorted through most of the material, I used to have to do hand searches regularly. A lot of things were mis-marked—sometimes there would be a tape of Chuck Berry and Bo Diddley and other Chess artists playing together and it would be filed only under Bo Diddley. Sonny Boy Williamson tapes were often marked "Williams," things

**People seem to understand the nature of the degradation of mastering at 20-bit and going down to 16-bit. This knowledge now permeates beyond the engineers; the label executives understand it, and that's important because they pay the bills.**

material for their own personal reasons.

Once the projected release is forthcoming, we put together all the basic facts regarding the package. This includes the tracks, who to license what from if necessary, how much it will cost for everything, from mastering to liner notes. The art department comes in with their costs, and it gets put through a profit and loss statement blender. If it comes out looking like something that will work financially and otherwise, then it is officially scheduled, given a release date, and I start working on it.

*Where do you start?*

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like that. There were even album assemblies of true masters listed only under the album title.

Together with Randy Aronson, who runs the vault, and his staff, we have ironed out most of the problems, and virtually every significant master is now readily available. We still have some unknown, unmarked tapes; every so often, Randy will send me some mystery tapes and I'll listen to them and try to identify them. But we're close to having the vault completely organized.

Then I review the tapes and choose the masters to be used. If I need a disc transfer, I have an outside person, Steven Lasker, who does these, either from metal or from a regular record. Steven will search for the best source and do a transfer with whatever cleanup is necessary using his CEDAR system. He has done great stuff for us. For *Rollin' Stone*, the Muddy Waters classic, the inherited masters were all dreadful. I had Steven find a wonderful 78 rpm disc, and we transferred it, cleaned it up a little, and it's much better than the master we inherited.

Steven Lasker co-produced the Billie

Holiday set for which we won a Grammy, as well as the Bing Crosby box for which we were nominated. He's a pre-tape expert and a wizard at mastering pre-rock material, so I never hesitate to use his services.

Then we take the masters to our engineers Erik Labson and Paul Elmore, or Doug Schwartz, who used to work at our studio but now has his own company, Audio Mechanics. We talk about the project; the engineers are not always familiar with each artist. We just did the complete Chess recordings of Jimmy Rogers. Erik said, "I know I've listened to him, but..." and I said "When you're EQ'ing it, think of the swing end of the blues, the Little Walter end of the spectrum, not the Muddy Waters harder-edged side," and he said, "Okay, now I get it!"

Erik will do the first assembly from scratch. Sometimes he'll call me with questions, but it's usually pretty much his game. Then it comes to me on reference CD, and I listen and take notes for EQ and sometimes sequence or edit changes. Sometimes he's pulled the wrong take if it's from an original session reel. I give him my notes, or I go to the studio and we adjust it to the way I

want it.

There are variations; we occasionally do remixing from multitracks. We've done lots of editing. We're doing a Cass Elliot package, and we edited some intros with her live dialog. She's introduced, she talks and then goes into a song. It works; her fans will get a big kick out of it, but the conversation sequence actually comes from three different places; we used a lot of cross-fades and some de-noising to make it sound seamless.

We do whatever we have to do—edits, remixing, re-EQ'ing, resequencing. Generally I go to the studio with most projects and spend a couple of hours going over things. But sometimes I don't even need to do that. Erik has done so much Muddy Waters with me that it is now second nature to him; he might nail it the first time as long as I give him the right tapes.

Occasionally a project needs a lot more work. We end up with three or four reference discs, and I'm in and out of the studio. Somewhere along the line we come up with a finished product that we're happy with. We cut the parts and send them to the factory, and we ship.

*Tell me the secrets of finding lost masters.* I've found masters everywhere. When we were doing the Lynyrd Skynyrd box set, I went down to Jacksonville because I had mentioned to [Skynyrd guitarist] Allen Collins' father that we were looking for some tapes, and he said, "I think under Allen's stairwell there are some tapes," and sure enough there were demos and some multis, just stuffed under the stairs.

Usually by calling and talking to people we find most of what we need. We go to the different older producers that were involved, and sometimes we go to the artist. If the right version ended up only on a particular LP assembly, we go after that assembly.

Sometimes you just have to ask the artist. I said to Elton John, "For your box set, how about the demo for 'Your Song'? I've never even heard it, but isn't that a natural?" Elton got up, and he's walking around the table excitedly, thinking; then suddenly he says, "I know where it is!" Somebody had it, he knew where it was, he just made a phone call and we had it; he just had to think about it a little.

I've found things everywhere, from the original recording studios to private collections to other companies' vaults to under the stairs in humidity central, Jacksonville, Florida. You just keep

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looking until you're satisfied. There's no formula; generally speaking, what I need is available.

Once in a while you have to go outside and get a disc or investigate who had their hands on things last. We've been lucky. I've had people call me up, sotto voce, and say, [whispers] "Ahh, well, y'know I worked at Chess Records, and I ended up with some tapes; they followed me home." I've made deals with these types of people; you get the tapes however you get them. Tapes have grown legs and disappeared from every record company there is.

Often it is a matter of simply digging in your own vault. I was particularly thrilled with finding the stereo masters of Howlin' Wolf. Many of the stereo originals were on an EP made exclusively for use on Seeburg jukeboxes and were never commercially available. They sounded remarkable and just exploded off of my office stereo. Then I found the "Killing Floor" stereo on a 30-year-old multi-artist assembly that was made for export only. I've been using only these wonderful stereo masters

ever since.

Also, sometimes the original master is a mess, flaking off and falling apart or already fallen apart, either from poor storage or the use of bad tape. And sometimes at the end of the day it's hard to tell what generation was used for the remastering. A lot of it depends

**You get the tapes  
however you get them.  
Tapes have grown legs  
and disappeared  
from every record  
company there is.**

on how the transfers were made, how much garbage, such as noise reduction, was put in at each step.

I've even found that the best existing master could be in one of the two tracks of a fake stereo version, better

than the existing mono versions, depending on how the stereo was faked. They sometimes left one track clean and put all of the reverb and other nonsense on the other.

We all talk about original masters, and I know there are some reissue engineers who claim that is all they work from. I would venture to say that most of them are full of crap. I don't think you could find the original master of everything you need, especially if you're doing a lot of work.

I do know one big-time engineer who has walked away from projects because he didn't have all firsts, all original masters. I wish I could do that, but no one who is doing 50 or so reissues a year can do that. Last year I did 100; we've generally averaged about slightly more than 50 a year. It has to be almost like a machine. There are times when I feel like I'm the McDonald's of reissues because I do so many, but I can't let it be like McDonald's.

*How do you keep it from being like that?*

You have to focus on each package as a package, not as one of 50. Each package has to have its own life, it has to be zeroed in on, from the track selection to the accuracy of the information in the booklet. Each package has an audience, and you have to reflect what they expect, want and need from the artist and the package.

I always try to include tracks not currently or previously available. We just did a Patti LaBelle hits set and put things together from all the various phases of her career, from Warner Bros. when the group LaBelle hadn't yet taken off, from Gamble & Huff in the late 1970s, from all over. Patti has had a lengthy, involved career, and there had yet to be a package that put together the best from each phase. By including a few tracks that her biggest fans might not even be aware of, but which are fine recordings, we helped to ensure that the package did very well critically and commercially.

*What kind of sales figures are we talking about?*

It ranges from clinkers that are down in the low four digits to the Platinum records on my wall, for things like Lynyrd Skynyrd reissues that have sold 2 million. With the profit and loss setup that we use, if you surpass the projection on the first year and ultimately make mince-meat out of the projection, whatever the projection is, you've done well.

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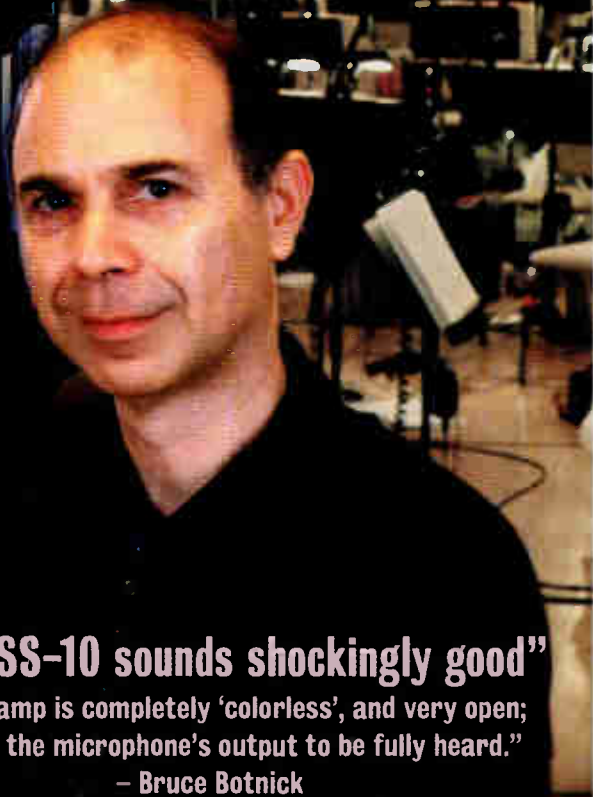
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# The Natural Sounding Mic Preamp from Martech



**“The MSS-10 sounds shockingly good”**

The pre-amp is completely ‘colorless’, and very open; it allows the microphone’s output to be fully heard.”

– Bruce Botnick

Grammy Award winning Producer, Mixer  
Mr. Botnick has recently used his MSS-10s on:

*Air Force One, Deep Rising, The Edge  
L.A. Confidential, The Doors-Box Set*

*Beauty and the Beast-Original London Cast Recording*

**The MSS-10** gives you a whole new perspective of your microphones’ sound. What you will hear is openness, transparency, clarity, warmth and body. You’ll hear music that is full of life – the difference between astonishing realism and mere accuracy.

“If you really want to hear what your best microphones sound like, plug them into an MSS-10 and prepare for the sweet truth.”  
– Mike Sokol, EQ Magazine, October 1997

Mic preamps are not created equal. They may measure the same, but sound wildly different. That’s why the most meaningful test procedure we use is quite simple, but revealing.

**We Listen** first to individual components, then to each component as part of the system. We even developed a microprocessor controlled, motorized, double blind, A/B listening system to make sure we didn’t fool ourselves.

Such extensive listening enables us to make every MSS-10 effortlessly reproduce the original sound of the microphone. Nothing more, nothing less.

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– David Foister, Studio Sound, June 1997

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PRODUCER'S DESK

do 12,000, that's successful; if the projection is 50,000 and you do 45,000 that is not successful, even though people would say 45,000 sounds pretty good. But if you based your costs and advertising on 50,000, then you need to sell that amount. If you can do a good job and surpass the projections regularly, you earn your stripes.

*So how did you become such a big part of the Steely Dan booklet that came with that wonderful box set?*

I had dinner with Donald Fagen in New York, and I told him my ideas for the package; he liked them, and I got together with Walter Becker out here (he lives in Hawaii). They would agree on things and then change their minds several times. I get a big kick out of them—they're very nice guys and funny and very bright. They're difficult to deal with on the one hand, and on the other hand they know it. [Laughs]

*These are the guys who would spend three years making a record!*

They think about everything they do, and then they think about it again, this is true. But they respect the fact that you want to do it right, and that you are able to deal with their craziness, and I truly don't mind. After all, it's their music, and I'm comfortable going back and forth with people like that, who care so much about what they put out that these delays are inevitable.

I asked them to put together some insights on the music for the booklet, and they got caught up in their first tour in 20 years and it fell to the side. And they called me from the road, going into Texas Stadium from the limo, and started giving me nonsense about the liner notes and the box, and we all laughed our heads off!

Then one day Walter called just as the due date was upon us and said, "I'm faxing the liner notes. Call me as soon as you get them!" I ran to the fax machine and grabbed it; it was a very funny letter addressed to me, and I did a double- and then a triple-take.

I called Walter and Donald and said, "You don't want us to use this!" They said, "This is what we want." I went to the president of the label and said, "This is what they want, and I feel a little awkward about it." He said, "That's what they want, that is what they'll get." In their own fashion, it was a very nice tribute to me, and I very much appreciated it. ■

*Eric Rudolph is a Manhattan-based freelance writer.*

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# BONGO BOB PRODUCTIONS

## CUTTING ON THE EDGE IN SACRAMENTO

The hype is omnipresent: With ISDN lines, Fed Ex and a cell phone, you can operate a business anywhere and still be a player in major markets. Well, in Sacramento, Calif., Bongo Bob Productions is a shining example that the hype also can be reality.

With a bevy of recent honors (including a Clio, an Emmy and NBC's Golden Peacock) and songs placed on national television (including cuts on *Beverly Hills 90210* and *Late Night With David Letterman*), BBP has moved into the spotlight. They do it all on-site—sound design, music production, ADR and layback for TV and radio—in a facility that is the first of its kind in the area.

Bongo Bob, né Bob Smith, started his music career playing congas with an Afro-Cuban drum troupe, touring with Steve and Edie and the San Francisco Symphony's New Music Players, and remixing cuts for singer Debora Iyall of the cult-favorite band Romeo Void. The nickname? He was christened by "some drug-crazed spectator at the very first concert I ever played, who yelled out, 'Hey, look at that guy with all the drums, man. That's Bongo Bob!'"

In the mid-'80s, Smith was working as an arranger, musician and composer for producer Narada Michael Walden on projects for artists such as Whitney Houston, Aretha Franklin and Lionel Richie, along with personal productions on the side. His wife, Kathi, was running one of the top restaurants in San Francisco. "Everything was great," he remembers, "except somebody else was raising our child, and we wanted to change that."

Growing the business in Sacramento wasn't easy at first. For a while after making the move in '87, Smith was still mostly employed in the Bay Area, commuting for Disney remixes and productions for Hollywood and Warner Bros. Records. But he was also set up at home. "My little studio had, if you can believe it, a Peavey 7-channel

Graphics bay and an Avid 8000 editing system at a video post-production facility called Pacsat, which is literally right next door. Business is booming for Pacsat, too, and we do a lot of work together.

"We use two different methods of ISDN," Smith continues. "One is for real-time audio transfer; as part of the EDnet network, we can drop into any studio in the world and do real-time recording. We also have another system called DGS that enables us to drop finished program from studio to studio within five minutes."

Smith's main composing tool? "Pro Tools, without a doubt," he says. "And the [Yamaha] 02R is equally powerful for us and indispensable to our business. You can build a mix with EQ, DSP, pans, have all the automation in place, save it and go on to another project and then be able to recall it in seconds. Also, a lot of times you may not be using all the channels, so you can have another mix going from the other room. You can jump back and forth between mixes and between rooms."

On the day we spoke, Smith was doing just that: sweetening on a commercial for Sony, mixing a spot for Airtouch Cellular and doing sound design for a State of California PSA. "Our business is about a 50-50 mix of local projects and work that may have pieces done just about anywhere," says Smith. "The Sony piece is being edited in San Francisco, with the final online editing in L.A., then they'll send it up to me to mix. Just the other day we did a session with voice-over talent in San Francisco, while the producer was here and the client was in Minnesota. We are trying to get people to see that we can be there immediately." ■



PHOTO: KEVIN LACON

mixer—not an 8-channel, mind you—a 701R, I think, and I had samplers. So I was writing songs, and I got myself and a couple of other people signed to publishing deals, all based on mixes from my bedroom.

"Then, of course, that extremely small space became too small! I went into an office space, put up Fiberglas panels—the '90s version of egg crates. I grew out of that and joined to another studio where I leased space. Then, in early 1996, we built this place from the ground up. We have two control rooms that use the same studio, and they are wired together with a Silicon

BY MAUREEN DRONEY

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CIRCLE #864 ON PRODUCT INFO CARD  
World Radio History

# THE NUMBERS Game

## What's New in A/D Converters

Take a look into the latest crop of A/D converters, and you'll spot several exciting trends. These trends all have to do with numbers—some of them going up, and some numbers going down.

Check out the numbers going up. Most noticeable are the sampling rates supported. 88.1kHz and 96kHz rates are becoming almost as common as their half-speed counterparts. Bit depths are increasing relentlessly as well, with 24 bits becoming no-big-thing and 18- or 20-bit converters seeming like yesterday's news. (DVD, here we come...) Finally, the number of conversion channels is climbing, with 8-channel converters becoming almost as common as traditional stereo units.



Apogee AD-8000



dCS 904A-D/902D

by Loren Aldrin



Benchmark AD2408



# 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.

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**1997  
Nominee**



Midiman Flying Cow



Focusrite Blue 245

The numbers going down, as you may have guessed, all have dollar signs in front of them. For the same basic capabilities, prices of A/D converters are falling every year. The flip side of this coin is the increased capabilities you'll net with the same outlay of cash. Another plus is that a new converter set can keep an older DAT deck or workstation up to date at a reasonable investment.

What follows is the scoop on two dozen converters that have appeared on the market over the past year from nearly 20 different manufacturers. Do a little math on the latest and greatest in A/D converters—you'll see that the numbers are *definitely* adding up in your favor.

## THE CONVERTERS

**Apogee's** (Santa Monica, Calif.) AD-8000 provides eight channels of 24-bit A/D conversion in an expandable main-frame-style package. The AD-8000's (\$5,995) features include UV22 encoding, SoftLimit, advanced metering with numerical Over indicator/counter, on-board digital routing matrix with track bounce and headphone monitor. Four expansion slots allow 24-bit encoding to MDM, 8-channel AES/EBU output, 24-bit sample rate conversion and other functions.

The AD2008 from **Benchmark Media** (Syracuse, N.Y.) offers eight channels of 20-bit conversion in a single-rackspace design for \$3,950. The new AD2408 (price TBA) bumps the resolution to 24 bits at sampling rates up to 96 kHz. The AD2408 will redither to shorter wordlengths, and boasts numerous I/O options, including standard AES/EBU, AES3id (BNC) and S/PDIF.

**Crane Song** (Superior, Wis.) offers HEDD (Harmonically Enhanced Digital Device), a single-rackspace digital

processor combining 20-bit converters (for analog or digital I/O), high-res digital metering and real-time harmonic enhancement to create tube-like sounds in the digital domain. Its ADCs and DACs can be used separately or with HEDD processing. A low-cost 24-bit upgrade path is available. Retail: \$2,750.

**dB Technologies** (distributed by Audio Intervisual Design, West Hollywood, Calif.) bumped the capabilities of its AD122 A/D converter to 96 kHz at 24 bits. The new AD122-96 (\$7,295) offers 44.1-, 48-, 88.2- and 96kHz sample



dB Technologies AD 122-96



Lucid Technology ADA1000

rates; digital soft-knee limiter; flat, high-pass and noise-shaped dither; precision 37-element metering; programmable digital test tones; and recessed front panel input gain controls.

**Digidesign** (Palo Alto, Calif.) recently released a new interface for its popular Pro Tools workstation. Called the 888/24 I/O, the new converter provides eight channels of low-jitter 24-bit ADCs and a redesigned analog section. Inputs and outputs include +4/-10dB analog, four pairs of AES/EBU in/out, S/PDIF in/out, 50-pin peripheral connector and 256x clock in/out. Designed to replace the original 888 I/O interface, the 888/24 I/O (\$3,495) has a stand-alone mode for operation independent

of a Pro Tools system.

The model 1962 A/D mic preamp from **Drawmer** (distributed by Trans-america Audio Group, Thousand Oaks, Calif.) offers two channels of 24-bit A/D conversion following a feature-packed analog front end. The 1962 offers a mic preamp, high- and lowpass filters, three-band EQ, low- and high-frequency enhancement circuits and tube drive circuit for each channel. The digital section boasts selectable word-length output; 44.1kHz, 48kHz or external clock operation; 11 noise-shaped dither modes and "bit-splicing" digital output for 24-bit recording on TDFIF-format MDMs. List price of the 1962 is \$4,999.

New from **dCS** (distributed by Canorus Inc., Nashville) are the 904 A-D (\$12,000) and the 902D (\$9,850) stereo A/D converters. The dCS 904 offers sampling frequencies up to 192 kHz at 24 bits, noise-shaped truncation to 16 or 20 bits, balanced analog inputs, numerous switch-selectable digital output configurations and remote control from a Windows-based PC. The 902D has similar capabilities with 24-bit sample rates up to 96 kHz.

**Focusrite** (distributed by Group One, Farmingdale, N.Y.) debuts the Blue 245 stereo 20-bit A/D converter.

The Blue 245 (\$4,995) offers variable input levels, 12-segment metering, 32/44.1/48kHz sample rates and proprietary Triangular Probability Density Function dither for 16-bit output to AES/EBU or Toslink connectors.

The A2D2A 20-bit stereo A/D converter from **Harris** (Quincy, Ill.) offers dual input level controls with stereo link, 7-segment LED metering, signal present indicator and 32-, 44.1- and 48kHz sample rates. The A2D2A (\$599) has 1/2-inch and XLR analog inputs and outputs as well as AES/EBU and S/PDIF in/out.

**Korg** (Melville, N.Y.) offers the DRS 880A/D audio interface for its Sound-Link digital recording/mixing system. The DRS 880A/D (\$759) provides eight

# The State of the ART

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Fully impedance and voltage balanced transformerless inputs

DRE encoder and decoder for hi-bit performance using 16-bit media

**DA-2**

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Comprehensive range of interface formats:  
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7-way multi-format source selector, with feed-through digital output

DRE decoder for hi-bit performance using 16-bit recording media



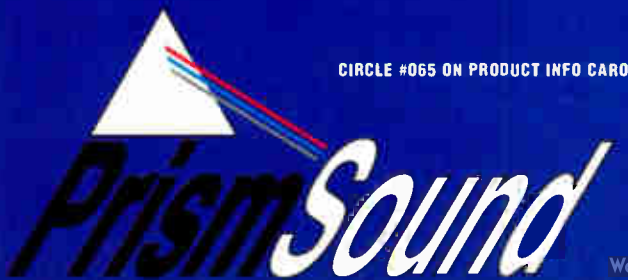
The Super-Noise-Shaping (SNS) system is a dithered re-quantizing system for digital word-length reduction with a broad range of spectral weightings to suit all music types and preferences. Typical applications include 24- to 16-bit conversion for CD.

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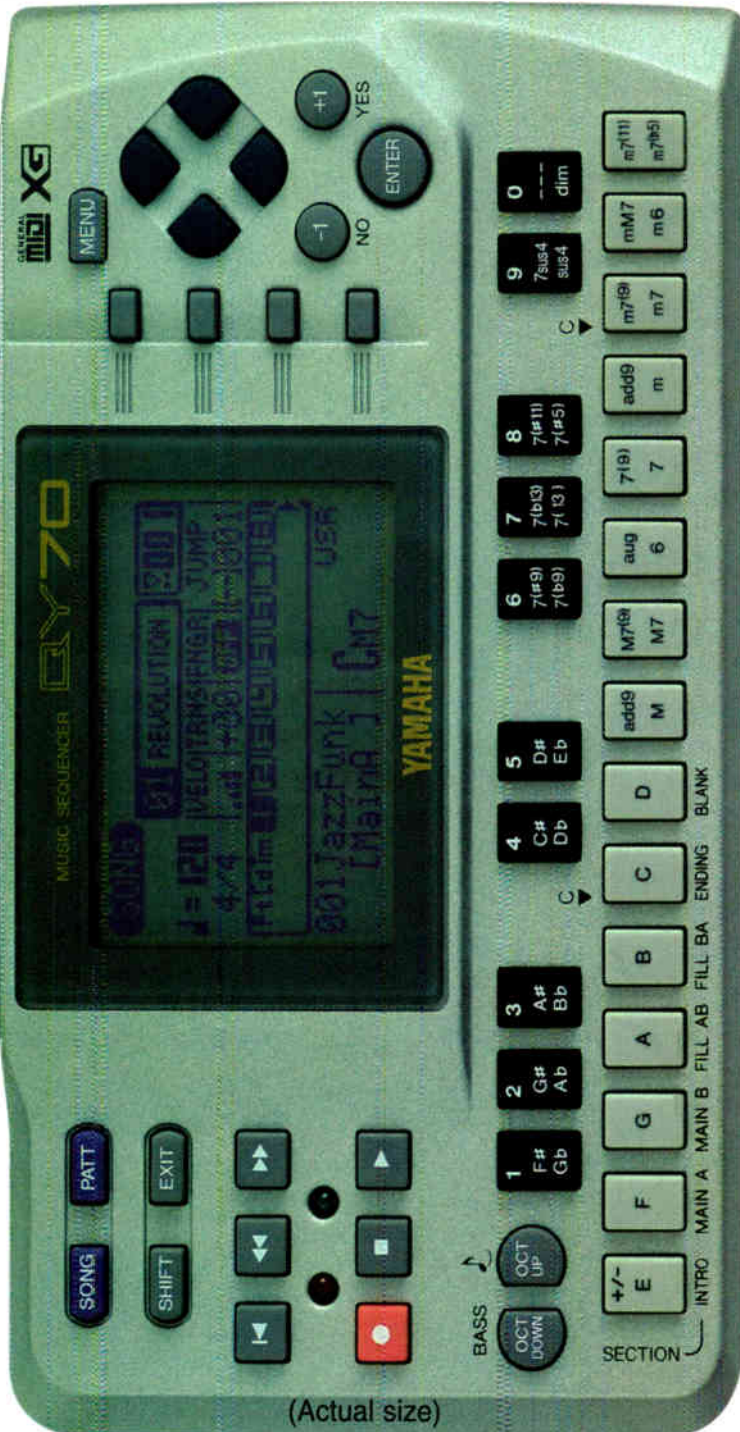


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\*Please drive responsibly. Yamaha does not condone simultaneous drinking and music making.

CIRCLE #067 ON PRODUCT INFO CARD

channels of 20-bit A/D conversion with ADAT optical output, 3-segment input level metering and front panel analog input level controls.

**Leitch** (Chesapeake, Va.) offers two new A/D converter modules for its FR-Series mainframes. Both the ADC-880 and ADC-6880 offer stereo 20-bit conversion, wide-range input level controls and 44.1kHz and 48kHz sample rates. The ADC-880 offers balanced AES outputs; the ADC-6880 adds 75-ohm coaxial SMPTE digital output. Both converters have a list price of \$895.

**Lucid Technology** (Edmonds, Wash.) introduces a new low-cost A/D converter, the ADA1000. Priced at just \$599, the ADA1000 offers stereo 20-bit A/D and D/A conversion, front panel input level controls and meters, stereo link, XLR and 1/4-inch analog inputs and outputs, and AES/EBU and S/PDIF digital I/O. The ADA1000 supports sample rates of 32, 44.1 and 48 kHz.

**Midiman** (Arcadia, Calif.) offers its low-cost Flying Cow stand-alone A/D converter. The Flying Cow (\$400) offers 20-bit stereo conversion at 32, 44.1 and 48 kHz, external word clock, input level control with 6-segment meters, XLR and 1/4-inch inputs and outputs, and AES/EBU and S/PDIF I/O.

**Millennia Media** (Placerville, Calif.) adds 24-bit A/D capabilities to its HV-3C solid-state stereo preamp. The HV-3C (\$3,795) offers S/PDIF, AES and ADAT outputs, UV22 bit encoding, SoftLimit, calibration oscillator and stepped gain



**Millennia HV-3C**

switching. Options include Paqrat 24-bit encoding to ADAT, digital input and 130-volt mic preamp.

The new ADAC9624 (\$3,995) from **Mytek Digital** (New York, N.Y.) offers 24-bit stereo A/D conversion at sample rates up to 96 kHz, programmable noise-shaped dither, simultaneous high-speed and decimated AES/EBU digital output, 13-segment metering and Class A headphone amp. Options include 24-bit encoding to MDM and SCSI output for direct-to-disk recording with simple "DAT-like" interface. Also available from Mytek is the 8X24 8-channel A/D converter (\$2,995), which offers 24-bit conversion, balanced XLR inputs, AES/EBU outputs and optional

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24-bit encoding to MDM. The 8X24 is upgradable to 96kHz operation.

**Pacific Microsonics** (Berkeley, Calif.) has updated its Model One HDCD mastering processor to operate at a sampling frequency of 176.4 kHz. The resulting digital signal can then be archived at high resolution or decimated to 44.1 kHz for high-definition CD encoding. The Model One (\$12,500) also offers Peak Extend digital limiting and Low-level Range Extension circuits. In addition to balanced analog inputs, the Model One will accept AES/EBU digital signals up to 88.2 kHz and 24 bits.

**Prism** (Mountain Lakes, N.J.) introduces its AD-2 stereo A/D converter. Offering 24-bit conversion at sample rates up to 96 kHz, the AD-2 will also perform sample rate conversion between 96-, 88.2-, 48- and 44.1kHz sample rates. The AD-2 has four noise-shapers built in and will simultaneously output any two sample rates. List price of the AD-2 is \$7,420.

Reviewed elsewhere in this issue, **SCV Electronics'** LA Audio Classic Series (distributed by Audionova, Dorval, Quebec) includes the Classic Compressor II, a stereo compressor/de-esser available with an optional, internal 20-

bit A/D converter, priced at \$1,399, with the ADC option an additional \$639.

**Studer** (Nashville) offers the model D19 MicVALVE, a 20-bit stereo converter coupled to a tube-based pre-amp section. MicVALVE (\$3,995) boasts selectable noise-shaped dither, pre- and post-valve insert points, mic input with phantom power and adjustable tube coloration. The D19 MicAD (\$4,995) offers eight channels of mic/line preamplifier with 20-bit



**A**bsolutely!! It's the AD2408-96, and it has eye popping performance. Eight channels with sample rates up through 96 kHz, selectable word lengths, redithering, THD+N of -112 dB at -1 dBFS, dynamic range of 120 dB, and metering on all channels. Intrinsic clock jitter is typically 9 pico seconds and the AD2408-96's PLL provides ultra clean lockup to an AES reference. Numerous I/O options are available including AES/EBU, AES3id (BNC), SPDIF. Priced under \$5000. Call Rory Rall today for more information.



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—CONTINUED ON PAGE 97

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*Loren Alldrin is a Nashville-based writer, engineer and producer.*

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# Archiving and Storage

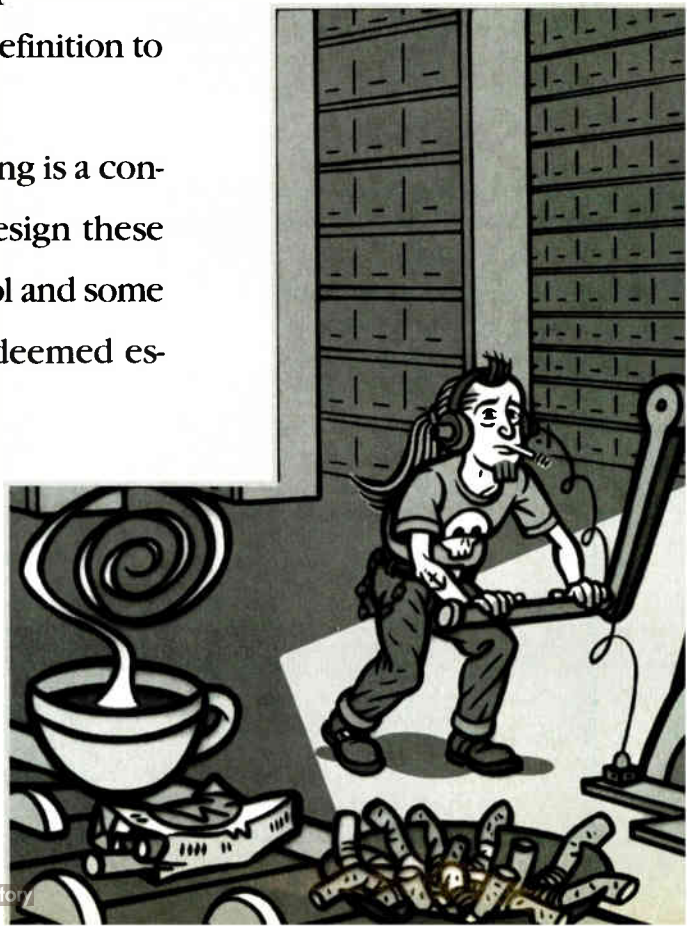
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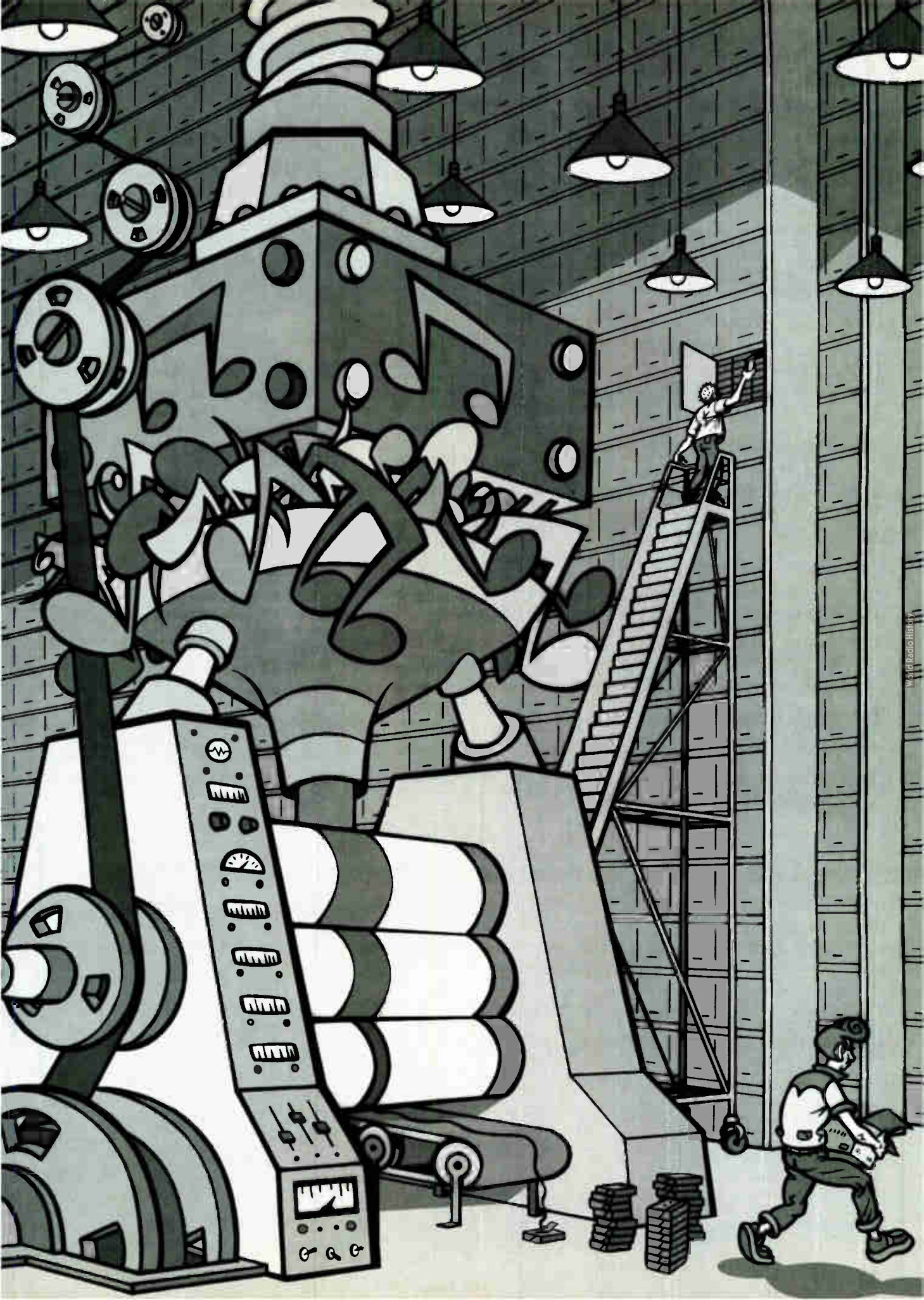
BY DAN DALEY

**T**he same sort of sarcasm attached to the phrase “computers make your life easier” has equally pithy application in the world of media. The plethora of formats out there gives a daunting new definition to the previously vague term “multimedia.”

Appropriate media storage and archiving is a consideration in any major-league studio design these days, with media shelving, climate control and some sort of inventory and retrieval system deemed essential: the tape vault, it used to be called, when tape was all there was. But the proliferation of media types offers an appropriate irony for the Information Age: Everything keeps getting smaller, but there’s just more and more of it to keep track of.

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**A**nalog tape should be stored tails out  
to minimize the effects of print-through. And  
magnetic tapes should always be stored  
vertically—so that the weight of the tape is  
supported by the hub.

In the upper strata of the audio business, new attention is being paid to this abundance of media formats, both consumer and pro. CD replication plants are seeking to consolidate their mastering formats, a task whose importance was reinforced by recent audio quality comparison forums held in Nashville and New York—replicators arrived with a dozen or more versions of program material in half that many media formats. Major record labels, more aware than ever of the importance of back-catalog material, are watching this process closely; they have the most to gain—or lose—when it comes to making sure that a 20-year-old recording can be put back on the retail racks one more time.

Interestingly, though, it's in the mid-level commercial and personal/project studios that the media muck is at its thickest. Individual facilities generally choose two formats: one to record and manipulate media in and one to mix to. That tidy equation is already showing signs of stress as more engineers record in one format, transfer to another for editing, then mix to multiple formats. As multichannel audio becomes more common, that trend will expand exponentially.

"It got to the point where we had to sit down and start pondering what we were gonna do with all this stuff," says David Beal, co-owner of Noise Production, a multimedia production company in Manhattan. "I built a set of shelves in the corner of my house, and that's where everything's being stored for now. It's dark, it's dry, it's relatively climate-controlled because the place is air-conditioned. It's getting to the point where there's just too much material on too many formats. But it's not worth it to go out and rent a vault for a company this size, and besides, there aren't any companies that do storage specifically of tape that we know of. So we

have to constantly re-evaluate archival options." Noise recently switched to CD-R as a common archiving format; the company had previously used a combination of dataDAT and 650 optical cartridges.

Beal's plight is endemic to the base of the industry. Personal studios are pretty much responsible for their own storage needs, and Beal's solution is sufficient in most cases: A temperature range that's appropriate for humans is also appropriate for virtually all media, linear and optical. The same goes for the humidity range, and while mounting a hygrometer near the shelves might be a nice Felix Unger-ish touch, it's not necessary as long as the air conditioning is working. For those who require precise values, JRPro/BASF's Mike Ryan suggests optimal temperatures between 60 and 75 degrees F and relative humidity of between 40% and 60% for tape and discs. Keeping media off the floor is highly recommended, as is keeping it out of containers that can attract or retain moisture. That means the ubiquitous shoe box—which is still referred to both literally and metaphorically when talking to people about this subject—no longer provides an adequate model for media storage.

Tape has a few more handling characteristics than does optical media. Ryan recommends that tape be allowed to acclimate itself over the course of 24 hours after being shipped between radically different environments. Low-speed winding is preferable to keep the tape edge from being exposed outside the normal tape pack. Analog tape should be stored tails out to minimize the effects of print-through. And magnetic tapes should always be stored vertically—so that the weight of the tape is supported by the hub—and in a sealed plastic box or acid-free container to minimize the possibility of decomposing in the binder that holds the for-

mulation to the backing.

### LEMONS? MAKE LEMONADE

The Grand Central Station of media on this level is now the mid-level mastering house and related facilities. One of those related companies is Disc & DAT, which started as a home-based business in Nashville four years ago, creating CD-R discs when the hardware and software costs of that then-new technology were extremely high. Company owner Van O'Dell found that as CD-R became cheaper and more available, he expanded his range to include services like editing. The multiplicity of formats is now pointing to yet another new service: archiving.

"I've started archiving my clients' masters to 8mm Exabyte tape," O'Dell says. "I can store the program material and the edits and EDLs that way. I was loading masters into my hard drive to work on them, but once the project was done, I had to clear the drive. But I started getting more calls from clients asking me to burn another CD from an earlier project. So I decided to offer archiving as a service. And people are responding to it."

O'Dell dumps the music and PQ information to Exabyte after each session, maintaining all the work he's done on the project, including crossfades and digital black. This service also allows him to charge less for subsequent copies. He uses a new Exabyte tape for each project rather than combining individual projects from a specific client onto one tape, explaining that he finds it easier to keep them orderly for quick retrieval. Now that Disc & DAT is housed in a commercial building, the stored tapes are subject to climate conditioning that comes with the lease. But, says O'Dell, DATs, CD-Rs, Exabytes and other media seem to be pretty robust when you stay within the broad climatic parameters that suit most people.

The proliferation of mid-level mastering facilities has put another perspective on archiving. Chris Griffin, owner of Griffin Mastering in Atlanta, always makes a DAT safety copy of every master that's sent out for replication, and he stores it until the CDs come back. Griffin has no specific vault; again, reasonable climatic conditions are sufficient, although he stresses that darkness is an important consideration for CD-R discs because of the sensitive nature of the dye. Griffin also believes that current media are inherently robust—when sending DATs and optical discs to replication plants, he uses standard UPS and

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Federal Express packaging materials and adds a little bit of bubble wrap.

The lifetime of media obviously varies by type and functionality. The longevity of DATs has been estimated at well over 25 years, but like all linear media, they are subject to degradation from friction. Thus, the less the archived editions are used, the better. If the program material isn't being mass-replicated but needs to be played often, then make a clone. Recordable optical formats are asserting much longer lifespans, or, to use the technical term, MTBF—Mean Time Between Failure. Dennis Godlewski, who manages the Disc Media Group at CD-R maker Ricoh, says recent tests in the company's environmental chamber indicate the latest phthalocyanine dye formulations will last 200 years if stored and handled properly. "Handling for CD-R is the same as for any optical disc," he says. "Handle it from the edge and the hub, and don't get fingerprints on the recordable side."

**DEMANDS OF  
THE NEW WORLD ORDER**

What will change things in the future is the advent of new media and new processing, from DVD and multichannel mixes to processing like Cranesong's harmonic additive program and systems that can increase word length and bit size. "Storage is going to be more critical than it ever was as these new formats and processors come along," says Griffin. "The mastering step can no longer be regarded as the last step, because these things are going to cause masters to be remastered, maybe several times, and released several times over again as they get subjected to these things."

If anything, that's the real significance of storage now: The word "archive" is no longer a terminal term, and masters and their accompanying data could be used again and again after the first mastering. And the first step in any useful storage and archival program is awareness; the second step is common sense. Put simply, if the family pet has keeled over and vultures are circling, it's probably too hot and/or humid (the actual upper limit for recordable optical discs is around 130 degrees F); if the pet turns blue, it's probably too cold; if you need sunglasses indoors, it's probably too bright. Otherwise, you're fine. Probably. ■

Dan Daley is Mix's East Coast editor.

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# POSTCARD FROM TOKYO

## MAKING THAT ISLAND CONNECTION

Given its geographical and cultural position in the scheme of things, the Japanese recording industry remains something of a mystery to the majority of us here in the States. But, as a growing number of artists, producers and engineers are discovering for themselves, any involvement with a recording or production facility based in that fair island is bound to be a memorable experience. During a recent swing through Asia, I had the opportunity for a brief look at the recording scene in Tokyo.

The studio business in Japan isn't huge by North American standards. For a country that dominates the consumer electronics industry—and is gaining ground



PHOTOS: MEL LAMBERT

*Studio 1 at Onkio Haus, Tokyo, a multiroom complex that specializes in music sessions and mix-to-picture*



A new mobile recently commissioned by NHK (Nippon Hosos Kyokai) has been used for a variety of classical music, rock and operatic recordings around Tokyo. Production hardware is centered around an SSL SL 9000 console and a Euphonix CS2000 sidecar mixer.

in the recorder and recording media sectors of our market—Japan has a modest number of large-format tracking and remix environments: close to 250 48-track-capable rooms, according to reliable sources, of which in excess of 95% are located in Tokyo. (Osaka, for example, with a population of more than 2.5 million, is estimated to offer no more than eight rooms.) And project studios,

as such, are a recent phenomenon. There are probably no more than a couple of dozen such facilities in Tokyo, equipped with either ADAT or DA-88 modular digital multi-tracks, although there may be many more

there are some 280 SSL consoles installed within Japanese facilities, including more than 15 SL 9000 J Series and seven Axiom digital production systems (three in broadcast facilities and the remainder being used for video post). At the time of this writing, total worldwide penetration of 9000 mixers is some 60 systems, making Japan the largest single market outside of the UK and North America.

According to Susumu Kunisaki, editor-in-chief of Japan's *Sound & Recording* magazine, "The combination of an SSL console and a Sony [PCM-3348 digital] multitrack is very popular for Japanese studios and is essential for them to be considered world-

class. Also, vintage equipment is held in high regard in many of our facilities, particularly tube limiters and equalizers." Kunisaki says that, as in the West, many producers prefer to track in smaller, hard disk-



*Tube and solid-state outboard gear in Tetsuya Komuro Sequence's Studio 105 control room*

being operated on a strictly private basis whose address details, for obvious reasons, appear in few commercial directories.

By way of a yardstick, currently

BY MEL LAMBERT

—CONTINUED ON PAGE 110



# A TOUR OF HITOKUCHI-ZAKA STUDIOS

As you can read in Mel Lambert's article (opposite), Tokyo has a number of studios that we, in the rest of the world, would undoubtedly call state-of-the-art. During a recent visit to Japan, I had the opportunity to tour Hitokuchi-Zaka Studios Inc., a truly world-class facility.

Hitokuchi-Zaka studios belongs to the Fuji-Sankei Communications Group, one of the largest mass media conglomerates in Japan. Fuji-Sankei also owns the Fuji Television Network, newspaper company Sankei-Shinbun and record company Pony Canyon and has won such awards as the Premium Imperial Prize for the arts, the Rodin Grand Prize, the Henry Moore Grand Prize and the Environmental Art Prize.

Hideo Tanaka, president of Hitokuchi-Zaka studios, has 20 years of experience recording everything from 70-piece orchestras to pop/rock styles of music. He was



*Fuji-San studio*

The downtown facility comprises five unique studios as well as two CD mastering rooms. Studio 1 is used as both a tracking and a mixing room. The blue-screening material and imported American cedar specified by designer Shozo Kinoshita have aesthetic, as well as acoustic purposes.

Studio 1 is outfitted with a 72-input, 48-output Neve VR-72 console complete with Flying Faders and recall function. There are also Sony 48-track digital machines, or a Studer A800 24-track for those who prefer analog. This room also possesses outboard reverbs we rarely see anymore: two EMT 140 Plates. There's also an AMS RMX-16, Yamaha REV7, Roland SRV-2000, Sony MU-R201 and a Lexicon 480L.

All of the floors in this complex are lead floating on rubber floors for superb isolation. All rooms also have in-house, custom-built, active switching distribution amplifiers for the headphone networks to all the iso booths as well as the main studios and control rooms.

Studio 1 includes six isolation rooms. Two are dead rooms. The others are more live, featuring acoustical elements such as RPG Diffusors, stone walls and picture windows. One contains a Steinway B-211 piano. The control room is large by U.S. standards, and the loft for the EMT 140s is adjacent to a machine room for multitrack machines and the Neve board's power supply. Yamaha NS-10M speakers are used for near-field monitoring. The soffit-mounted speakers are Rey Audio RM-4Bs. Outboard limiter/compressors for this room include Neve 33609, two UREI 1176s, one UREI 1178 and a dbx



*Studio 1*

kind enough to be my guide along with booking manager Makoto Nijima as we took several days to explore their facility.

Hitokuchi-Zaka has two locations in Japan: an incredible residential facility near Mt. Fuji and a complex in downtown Tokyo.

**BY LAUREL CASH-JONES**

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## INTERNATIONAL UPDATE

162. The expander/gate is a Kepex II with four channels. There are also Roland, Yamaha and AMS RMX-15 delays. The EQ is nicely handled with six API 550As and four API 560As. In addition, there is a very large pool of outboard equipment and analog/digital storage devices available to all rooms. I was very lucky while in Studio 1, as I was allowed to do a small amount of tracking along with Tanaka to get a feel for this room. It is a rare day when this facility is not booked, and although this room is very popular with Japanese superstars, such as Motoharu Sano, The Alfee and others it has also hosted European and American artists, such as Bobby Brown.

As you enter Studio 2, you are immediately struck by its Mediterranean flavor. Used bricks, imported from Spain, cover more than half of the walls. This, in combination with the attractive teak accents, creates a very live atmosphere. There are three isolation booths in Studio 2, with one dedicated to the facility's second Steinway B-211. This room is equipped with an SSL 4064G (64-in, 32-out) console using the G Series computer for automation, a Sony PCM-3348 DASH machine and Mitsubishi X-850 digital (PD format) multitrack. Analog recorders include the Studer A800 multitrack with an Adams-Smith Zeta-III for synchronization.

The monitoring is, once again, via NS-10Ms for the near-field and Rey Audio RM-7V soffit-mounted mains. Again, their main outboard reverbs are

EMT 140S plates, as well as the same electronic outboard reverbs housed in Studio 1. The outboard delay is also the same as in Studio 1, with the exception of an additional Yamaha SPX900. There are also the same outboard limiter/compressors and four channels of Kepex II. The API configuration is also the same.

Studios 1 and 2 both have Tascam



Hitokuchi-Zaka offers mics from Neumann, B&K, Sanken, Sony, AKG, RØDE and RCA

DA-30s, and Studio 1 has an A820 analog 2-track. The 2-track in Studio 2 is a Studer A80 ¼-inch. The real difference between the two rooms is size; Studio 1's control room is much larger than Studio 2's. There are also acoustical differences: Studio 1 was designed with more of the Live End/Dead End philosophy, while Studio 2 is much more live; the teak-mounted console and producer's desk give a comfortable, warm feel to this room.

Studio 3 is the newest control room. It was designed by Neil Grant of UK architects Harris Grant Associates Ltd. The utilitarian-looking architecture of this room does not give away the subtle secrets of its acoustic treatments. Early reflections from within the room are



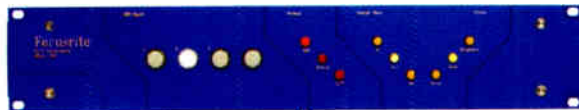
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CIRCLE #080 ON PRODUCT INFO CARD

# MASTER-PLAN:



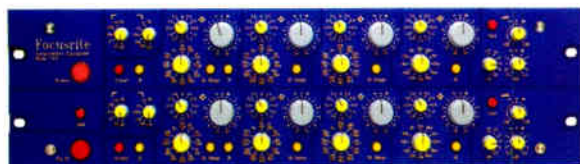
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World Radio History

minimized by use of geometry and absorption around the front of the room. Later returns from the rear wall, lateral and contra-lateral sides of the control room are diffused and passed back to the mix position. The diffusers have the property that all incident sound is returned to the room in a hemi-disc shape that is no longer phase-coherent to the original source. As a result, the later returns are integrated into the original source, allowing for a decrease in Haas effect, which gives the mixer the ability to create a mix that has breadth and a sense of imaging.

Studio 3 is equipped with a Neve VRL-72 with Flying Faders with recall. Monitors are Boxer 4s, and tape machines are Sony PCM-3348 and Studer A800. This room houses the third Steinway B-211 in the complex. While most of the outboard gear listed in the other studios can float to any room, there is also a dedicated Adams-Smith 2600, EMT140ST, Lexicon 480L, AMS RMX-16, and Roland and Yamaha processors.

Studios 4 and 5 are SSL rooms. Studio 4 is a smaller room, primarily used for mixing. It is equipped with 4080G

(80-in, 32-out) with G Series computer and Total Recall. Rey Audio RM-6Vs are, again, the monitors of choice. Both flavors of multitrack digital recorders are present in the form of a Mitsubishi X-850 and Sony PCM-3348. There is also a Studer A800, as well as Adams-Smith Zeta-3 synchronizer.

Studio 5 is the smallest room in the facility, but it is still well-equipped. Featured gear includes an SSL 4056E (56-in, 32-out) with G Series computer, plus the same complement of recorders as in Studio 4. Monitors are a Boxer 4 system. This room is also used for mixing music and audio-for-video with the addition of a Sony BVU-950 and PCM-1630 combination.

Completing our tour, we came to the two twin mastering labs. These rooms have Digidesign Pro Tools 4-channel systems, a Sony DAE-3000 mastering editor and dCS 900B A/D converters. Monitors are Rey Audio RM-6Vs. The rooms are rounded out with a Studer A820 ¼-inch and ½-inch reel-to-reel recorder with Dolby SR, and a Yamaha YPR-101/YPE 101 programmable disc system.

But the story doesn't end here. Located an hour-and-a-half away by car is the private residential studio complex,

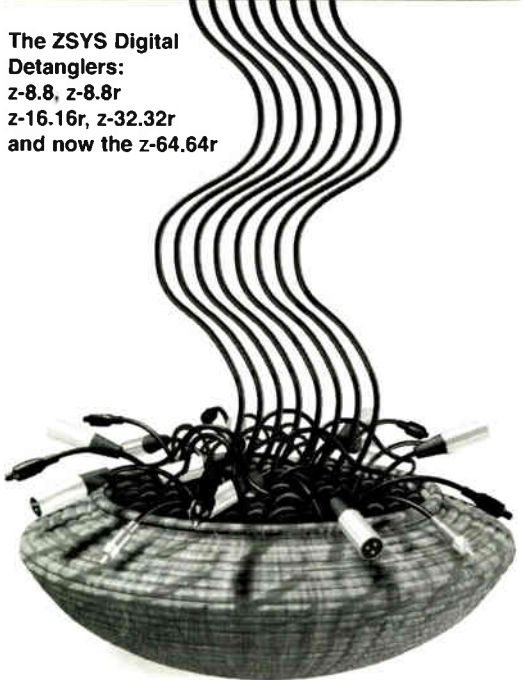
Kawaguchi-ko, otherwise known as "Fuji-san." Nestled in the shadow of Mt. Fuji, this studio is a complete recording retreat. The main studio has sound-proofed picture windows that look out onto the mountain. The residential portion consists of six Western-style sleeping quarters, a dining room and an artists' lounge that overlooks the forest at the foot of Mt. Fuji. The solitude and quiet here make for a remarkable contrast with the bustle of Tokyo. Upstairs, Western-type cuisine is served, while downstairs there is an intimate, traditional-style Tatami room.

Technology-wise, the residential studio lacks nothing. Featured equipment includes an SSL4072G+ (72-in, 32-out) with G Series computer with Total Recall, Rey Audio RM-6V monitors, Sony PCM-3348 and Mitsubishi X-850 digital recorders, and a Studer A800. There's also a marvelous Yamaha CF piano, EMT 140ST and 240ST plate reverbs, Adams-Smith 2600 synchronizer and a plethora of mics and outboard gear. I think I need to spend a week here just for a vacation. ■

*Laurel Cash-Jones, a freelance writer based in L.A., is chairwoman of the AES in the Schools Committee.*



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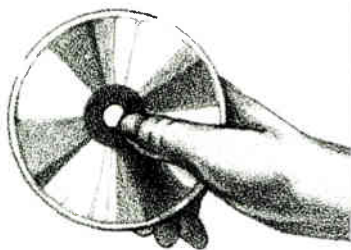
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CIRCLE #084 ON PRODUCT INFO CARD

**INTERNATIONAL UPDATE**

—FROM PAGE 104, POSTCARD FROM TOKYO

or ADAT-based facilities and then use a larger facility for mixdown, during which outboard hardware comes into its own.

Regarding the choice of studio, Kunisaki offers that the role of A&R director is still very strong in Japan, and that record labels dominate in decisions on what is produced and where. "The role of the independent producer is not as strong as you are used to in America," he concedes. "Our producers rely more on the record labels for direction in what artists to record, and the production style." Also, labels normally pay the studios directly, while the producer collects a fee for his/her work on the project; points or royalties are normally only paid to top-selling producers with a reputation. So it goes.

To Western ears, a lot of what reaches the Japanese charts can sound bland and very similar; there is certainly a predominance of young solo artists—both male and female—as well as bands of all persuasions. An album would need to sell around 100,000 copies to reach the top of the Japanese charts. Teenagers make up the vast majority of the Japanese buying public. "Since the labels are so powerful," Kunisaki continues, "we have a high turnover of usually young artists; many of them enjoy two or three hits and then are gone."

Japanese albums are produced to a formula, he says. "The composition, the way it is advertised on TV, the dramatic content and whether it's easy to sing along with the melody—all [these factors] need to be calculated for maximum impact. The hook is very important in this market. [Leading producer] Tetsuya Komuro is 'God of the Hook.' MTV promotion is also very important, as is the use of chart music in TV commercials."

Such is the clout of producer "TK" Komuro that he can call the shots on many of his sessions, and he has been equally successful as an arranger and songwriter. TK recently produced the main theme for *Speed 2*, which was recorded and mixed in L.A. Four years ago, Komuro opened his own personal-use facility in Tokyo. Located on the

11th floor of an innocuous looking building, Tetsuya Komuro Sequence houses two rooms: Studio 105 features a wrap-around 96-channel SL 9000 J Series with Ultimation, while Studio 104, which is linked to 105 via audio/video tielines and video links, offers a 64-channel SL 4064 G Plus with Ultimation. Tape machines include a pair of PCM-3348 multitracks; a Digidesign Pro Tools system is available for editing and comping vocal takes. A small overdub/vocal booth is available, although both rooms



*Yasman Maeda, head of the new Bernie Grundman Mastering, Tokyo, which features identical hardware to the Hollywood facility. A second room is already being planned.*

serve primarily as remix suites or for tracking synthesizers within the spacious control rooms. As with other facilities I visited, Tetsuya Komuro Sequence features a wide collection of outboard devices, including vintage Neve and Focusrite preamps and equalizers.

The facility also offers ISDN lines and APT codecs for linking the facility to studios and production locations around the world; it is often used to enable the busy producer to check mixes while he is out of town on business, says session engineer Akihisa Murakami. "We often use other studios to track acoustic instruments and then come back here with the [elements]. But the advantage of this place is that we can work any time we want to; that freedom is very important to us. And we are so busy with TK's sessions that we do not have any studio time available for outside work."

Founded in 1974, Onkio Haus is one of Tokyo's oldest and, by all appearances, largest music-recording and post-production facilities. Located in the Chuo district, the facility comprises four recording studios, a pair of mastering suites, plus a separate post complex next door—Eizo House—that houses a variety of D1 and D2 online editing

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suites, mix-to-picture and sound editorial rooms. Onkio Haus' flagship Studio 1, which is used primarily for scoring and tracking dates, houses the first SL 9000 J Series console to be installed at a Japanese facility. This room was rebuilt just over three years ago, with acoustics by Nitobo Design and studio staff. The spacious performance area features high ceilings and four isolation booths; an upper musician's lounge and gallery can be used for a variety of purposes, including the mounting of distance ambience mics.

According to technical director Hisao Yamamuro, "Almost all our sessions are for Japanese producers; we have very few overseas customers." A glance at the rate card may explain why. Published rates for Studio 1 are some ¥56,600 per hour; ¥500,000 per 12-hour day. At current exchange rates, that translates to around \$480 an hour or \$4,300 per day! Even though these rates include an assistant engineer and a Sony PCM-3348, plus fixed equipment—and inevitable discounts are available for regular clients—there's no escaping the fact that recording or mixing an album in Japan is going to be

expensive. (Not to mention the high cost of hotels and dining out in Tokyo!) Yamamuro attributes the rate differences primarily to higher real estate costs and staff payroll.

As I discovered, mastering on the vast majority of sessions at Onkio Haus is to half-inch, 15 ips analog or PCM-1630/U-Matic. All of the rooms feature Panasonic SV-3700 DAT machines but, Yamamuro says, "these are normally used for backup copies and/or trial mixes."

Regarding future plans, Onkio Haus' technical director says that the biggest impact is coming from private studios based on ADAT/DA-88 MDMs. "It is a similar situation to that of America," he offers, "but because we have specialized in orchestral and scoring sessions—and have recently upgraded the recording equipment in Studio 1—we do not compete directly with these home studios. We have also specialized in high-quality remix; again, we do not go head-to-head with project facilities. The key to success, we consider, is to find a market niche and then be the best in that specialty."

And, as I was to discover during conversations with several facility owners and operators, digital does not loom heavy on the horizon. "Aside from the high costs, processing delay means that it is impossible to use [digital consoles] for overdubs," Yamamuro says. "Even though the delay may be small, there are going to be inevitable phase anomalies between tracks. The ability to reset the entire console between sessions is very useful, but we still need to face the fact that these consoles cost a lot of money!"

Across town at the Bunkamura cultural complex in the Shibuya district, Tokyofun Recording Studios is a three-room facility with in-house CD mastering capabilities. Tielines between the studio complex and Bunkamura's Orchard Hall and Theatre Cocoon enable live recordings of classical music, opera and other events being held within the complex. Opened some eight-and-a-half years ago, the studio complex is a joint venture between Bunkamura's private owners and Fun House Record Company. (A residential studio is also available in Sapporo, a city on Japan's north island of Hokkaido.)

Control Rooms A and B are equipped with identical SSL SL 4064 consoles that connect into a single performance area designed by studio staff and Nitobo Design. High ceilings and a 1,600-square-foot floor area are aug-

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mented by several isolation booths. Studio C is a self-contained remix suite with control room layout identical to A and B, plus a small overdub/vocal booth. As I discovered, some 30% of studio sessions are booked by Fun House Records. Studio rates are similar to Onkio Haus: between ¥29,000 and ¥39,000 per hour—\$250 to \$340—depending on the use of Control Room A/B's live area, and other factors. Day rates are between ¥480,000 and ¥550,000 (\$4,100 to \$4,700).

The mastering suite is centered around a popular editing system: the Sony DAE-3000 controlling PCM-1630 processors fitted with Apogee anti-aliasing filters, and U-Matic videodecks. A Sony SDP-1000 Digital MultiEffector is used to enhance tracks, as necessary. Monitoring is via industry-standard Quedsted Q-212b cabinets.

A primary feature in the spacious recording area that's shared by the pair of control rooms is the extensive use of fir, spruce and redwood. As chief engineer Takashi Ito explains, "Natural resonance was an important consideration in developing our main studio. Top-grade fir and spruce from the woods of Hokkaido were used extensively for the interior, to create an ideal natural resonance. And, through careful design and engineering, we have achieved noise levels of NC-14. Because of the fact that the acoustic look and feel of all three of our control rooms are identical, clients can move freely between all three areas without having to readjust to the monitoring."

The studio also boasts an enviable collection of vintage microphones, many of which are used during the regular classical-music recordings made via tielines from the 2,200-seat Orchard Hall. A number of AKG C34 units with Stephen Paul capsules and enhancements are augmented by Telefunken U47s and the like. A local vendor, Studio Systems Laboratory, specializes in the rental and maintenance of vintage microphones and accessories. A neat touch is the use of a special temperature-controlled humidifier, set to 30%. It houses the most precious of the studio's collection and helps maintain optimal operating conditions for their capsules.

In terms of mastering, Ito says that most sessions are recorded to DAT or half-inch analog; the studio has little call for PCM-1630, despite the fact that its mastering suite is equipped primarily to handle that format. "We also have a pair



PHOTO: NIEL LAMBERT

NHK's Concert Hall features a large control room equipped with a Neve VR Series and a customized Tamura console (pictured), designed in conjunction with NHK technical staff.

of the PCM-9000s [magneto-optical mastering recorders], but I'm dubious about the [sonic] quality of the units' [built-in] A-to-D converters. We prefer to use outboard DB Technology converters. But the cost [of PCM-9000 systems] is very high!"

Although Japan's state-run radio and TV organization, NHK (Nippon Hosos Kyokai), operates a number of regional studios and production centers, its primary headquarters are located in Tokyo's Shibuya district. Here, in addition to on-air studios for NHK's radio and two TV channels—terrestrial news and educational services, two satellite services, plus a fledgling HDTV service that is currently broadcasting 12 hours a day to an estimated 1 million receivers throughout the country—the center houses a number of audio and video production suites.

During a tour of the 20-year-old complex conducted by Kimio Hamasaki, deputy director of the broadcast engineering department, I saw a number of studios equipped to handle HDTV and NTSC formats, including CD807, which features a TOA iX-1100 digital console linked to a PCM-3348 digital multitrack and a Fairlight MFX3 workstation/recorder. Other rooms house a mixture of Japanese-built and designed Tamura consoles in a number of customized formats, plus offerings from AMS Neve (8100 Series, VR, Logic Series and AudioFile workstations), Amek (including a 9098 used regularly by the radio division for large-format orchestral recordings), Solid State Logic (SL 4000, 6000, 8000 and OmniMix systems), plus other household names. According to Hamasaki, the complex employs some

5,000 staff, of whom 200 are involved with audio. Competition is stiff; the organization hires three or four new staff members a year from a total of over 200 applicants. NHK also operates its own training school.

Opened in March of this year, CR504 Music Recording Studio features a TOA iX-5000 digital console, one of three such units in use throughout NHK. As I discovered, digital audio and video figure prominently in the organization's day-to-day and future operations. A fiber-optic network carries AES/EBU-format digital signals around the complex at a standardized sampling rate of 48 kHz. The center is also looking closely at standardized digital audio file formats and developing a centralized server for its radio networks. (The latter was due to be installed by late October and on the air by the fall of 1998.)

Multichannel audio is also of great interest to NHK's TV and radio production divisions. The organization has been broadcasting stereo programming for many years, including Dolby Surround-encoded LCRS material. There are plans to offer 5.1-channel soundtracks for High Definition digital TV broadcasts. NHK TV is planning to install a new Tamura digitally controlled analog console in Studio 101 early next year, equipped to handle a total of 250 inputs during music and related sessions.

And the organization recently took delivery of a new mobile vehicle for use by its radio and TV divisions. The new A-1, which first saw action in late April while recording a symphony orchestra in Suntori Hall, Tokyo, is equipped with a pair of consoles: a main 48-channel SL 9000 J Series and a "sidecar" Euphonix

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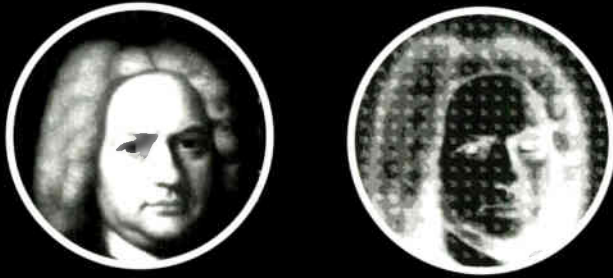
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CS2000 equipped with 56 channels. (Incidentally, Euphonix has also supplied NHK with a quartet of CS2000 consoles with moving-fader automation for use within the World Broadcast Center being provided for the 1998 Winter Olympics in Nagano.) Recording duties in A-1 are handled by a pair of Otari RADAR hard-disk units, or analog/digital multitracks, as required. Designed by NHK's engineering department and constructed by Keisei Body, the new vehicle will be used on its own for music recording and similar dates, or in conjunction with a video truck; a side section opens out to provide more space in the mixing area.

Finally, I was able to pop into Bernie Grundman Mastering's new Tokyo facility, which opened for business earlier this year in the Shibuya district. The facility is headed by Yasman Maeda, who was born and raised in Japan but previously worked with Grundman for six years at his Hollywood complex. Currently, the BGM/Tokyo office comprises a single mastering suite, plus a QC/proofing room; business to date has been so good, Maeda reports, that there are plans to open an additional room in the near future. "Japan was by far our biggest foreign customer," he recalls fondly of his hands-on experience at BGM/Hollywood. "And, because I was responsible for much of that business, it made sense for me to head up this new venture."

As in Hollywood, Maeda uses a custom-designed console fitted with both analog and digital signal processors, linked to a workstation for editing and sequencing. "We have the same custom consoles that are built in-house [in Hollywood] with all discrete electronics and 10-band graphic EQ," he says. Digital mastering is handled with a Harmonia Mundi BW102 system. Monitors are modified Tannoy two-way cabinets driven by extremely rare Crown CD-300 amps.

"Japanese clients are a little different from American producers and artists," Maeda explains. "They like to hang out with me and work through an entire project. In the States, we are more used to cutting a [CD-R or DAT] reference, and then discussing what we like—or don't like—about the balance, EQ and so on. Here, our clients often like to stay with a project and see it through in one session. But, the client is always right; we work the way they want us to!"

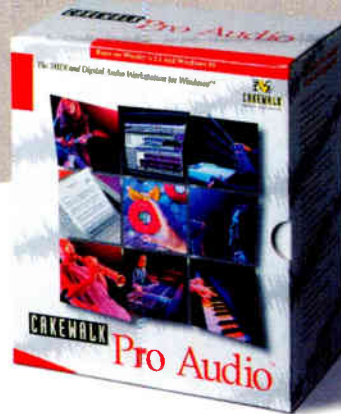
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Jorma Kaukonen of Hot Tuna fame joins the band in a musical tribute to Hall of Fame inductee Al Schmitt.



The two special award winners and their presenters: (l-r) Tom Dowd, Al Schmitt, Stevie Wonder and Les Paul.



# 1997 TEC Awards



Stevie Wonder injects some humor into the evening during his otherwise poignant acceptance speech for the Les Paul Award.

**BELOW RIGHT:** An all-star lineup: (l-r) Elliot Scheiner, Al Schmitt, Tom Dowd, Phil Ramone, Bruce Swedien and Alan Parsons.

**BELOW LEFT:** Mark Terry (r) of JBL Professional accepts the TEC Award for Sound Reinforcement Loudspeaker Technology from Stephen St. Croix and T.M. Stevens.

A capacity crowd of nearly 800 turned out for the 1997 Technical Excellence & Creativity Awards, held September 27 at the New York Marriott Marquis. In one of the evening's more special moments, the legendary Les Paul presented superstar Stevie Wonder with the prestigious Les Paul Award, honoring him for the creative application of recording technology. Multiple Grammy-winning engineer Al Schmitt was inducted into the TEC Awards Hall of Fame by longtime friend and mentor Tom Dowd.

Along with these special presentations, TEC Awards were given in 26 categories in the Outstanding Institutional, Creative and Technical Achievement fields. Mastering engineer Bernie Grundman was double winner in the categories of Mastering Engineer and Mastering Facility. He was joined by Ocean Way (Recording Studio), Skywalker Sound, winning its fifth TEC Award for Audio Post-Production Facility; Showco (Sound Reinforcement Company); newcomers producer Kenneth "Babyface" Edmonds (Record Producer) and Tom Fleischman (Audio Post-Production Engineer); five-time winner Robert Scovill (Sound Reinforcement Engineer); and six-time winner David Hewitt (Remote/Broadcast Recording Engineer).





Al Schmitt accepts the Hall of Fame Award.



(L-R): Tom Dowd, Thomas Dolby, T.M. Stevens, Les Paul, Stephen St.Croix, Al Schmitt, Sandy Palmer Grassl, Jane Byer, James Nichols, Karen Dunn, John McDaniel, Greg Fitzsimmons and Hillel Resner.

# Highlights

Winners in the technical category included Neumann for its M149 (Microphone Technology); JBL Professional for the H1A Series (Sound Reinforcement Loudspeaker); the Mackie SR 40•8 (Sound Reinforcement Console Technology); Soundcraft Ghost (Small Format Console Technology); and the SSL SL9000 J Series (Large Format Console Technology).

The evening's festivities were hosted by comedian Greg Fitzsimmons. On hand to present the awards were producer Bruce Swedien; engineers Sandy Palmer Grassl, James Nichols and Elliot Scheiner; Rosie O'Donnell band leader John McDaniel; *Mix* consulting editor Stephen St.Croix; and musicians Thomas Dolby and T.M. Stevens.

The House Ear Institute's Hearing Is Priceless campaign will once again receive 50 percent of the evening's proceeds to continue its efforts in hearing conservation. The remaining funds will be divided between the AES Educational Foundation, the SPARS financial aid program, Hearing Education and Awareness for Rockers (H.E.A.R.), the recipients of the Mix Foundation for Excellence in Audio Scholarship Grant (see "Current" on page 10 for details), and various audio scholarship programs throughout the United States.

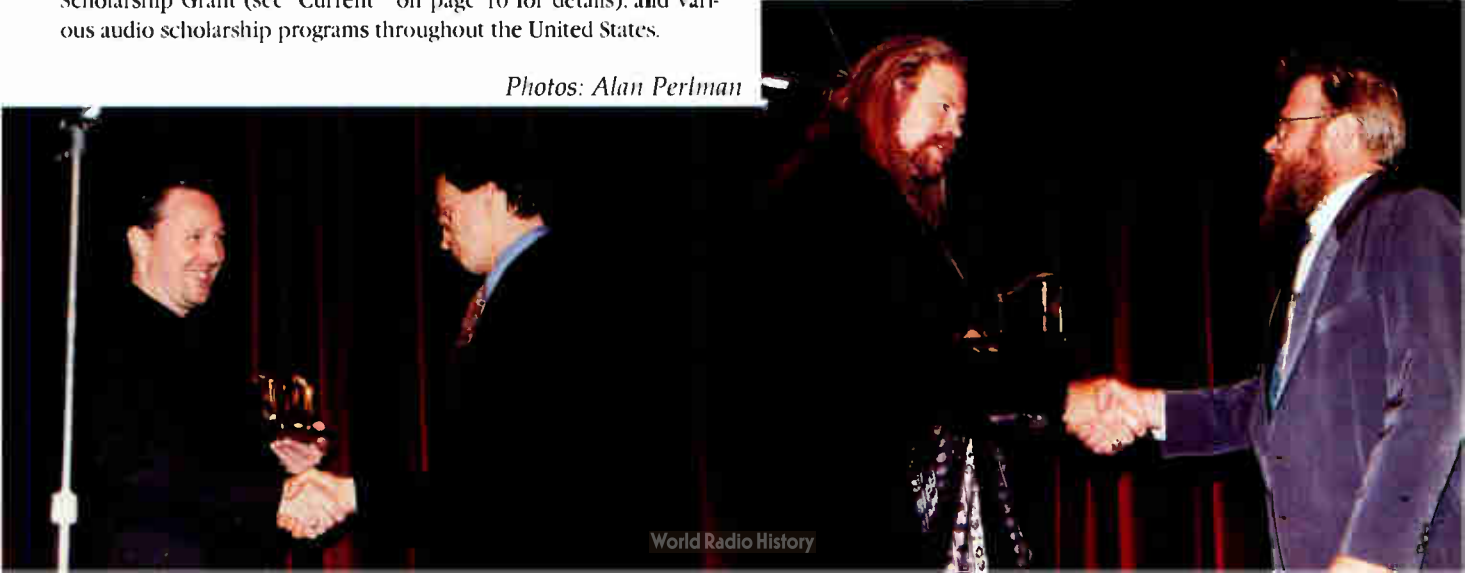
Photos: Alan Perlman

**RIGHT:**  
Kooster McAllister,  
owner of Record  
Plant Remote, holds  
his TEC Award for  
Remote Recording  
Facility.



**BELOW LEFT:**  
John McDaniel (l)  
presents Bernie  
Grundman with one  
of two awards  
Grundman received.

**BELOW RIGHT:**  
Stephen St.Croix (l)  
congratulates  
Genelec's Ilpo  
Martikainen for win-  
ning the TEC Award  
for Studio Monitor  
Technology.





Skywalker Sound's Leslie Ann Jones accepts the TEC Award for Audio Post-Production Facility.



Roger Maycock accepts the TEC Award for Recording Devices/Storage Technology for Tascam's DA-38.



Presenters Stephen St. Croix (l) and T.M. Stevens enjoy a laugh at the podium.



Dennis Houllhan accepts the award for Musical Instrument Technology for Roland's JV-2080 synth module.

(L-R) Singer M, and presenters James Nichols and Sandy Palmer Grassl.



# 1997 TEC Awards Winners

## OUTSTANDING INSTITUTIONAL ACHIEVEMENT

Acoustics/Facility Design Company  
**Russ Berger Design Group**,  
Dallas, TX

Sound Reinforcement Company  
**Showco**, Dallas, TX

Mastering Facility  
**Bernie Grundman Mastering**,  
Hollywood, CA

Audio Post-Production Facility  
**Skywalker Sound**, San Rafael, CA

Remote Recording Facility  
**Record Plant Remote**, NYC

Recording Studio  
**Ocean Way**, Los Angeles, CA

## OUTSTANDING CREATIVE ACHIEVEMENT

Audio Post-Production Engineer  
**Tom Fleischman**

Remote/Broadcast  
Recording Engineer  
**David Hewitt**

Sound Reinforcement Engineer  
**Robert Scovill**

Mastering Engineer  
**Bernie Grundman**

Record Producer  
**Kenneth "Babyface" Edmonds**

Recording Engineer  
**Ed Cherney**

## OUTSTANDING TECHNICAL ACHIEVEMENT

Ancillary Equipment  
**Apogee Electronics FC-8  
Format Converter**

Amplifier Technology  
**Crown K2**

Mic Preamplifier Technology  
**Focusrite Green I**

Computer Software & Peripherals  
**Cakewalk Pro Audio 5.0**

Microphone Technology  
**Neumann M149**

Sound Reinforcement  
Loudspeaker Technology  
**JBL Professional HLA Series**

Studio Monitor Technology  
**Genelec 1029A/1091A**

Musical Instrument Technology  
**Roland JV-2080 Synth Module**

Signal Processing Technology  
**TC Electronic Finalizer**

Recording Devices/Storage Technology  
**Tascam DA-38**

Workstation Technology  
**Sonic Solutions SonicStudio Post**

Sound Reinforcement Console  
Technology  
**Mackie 40•8**

Small Format Console Technology  
**Soundcraft Ghost**

Large Format Console Technology  
**Solid State Logic SL9000 J Series**

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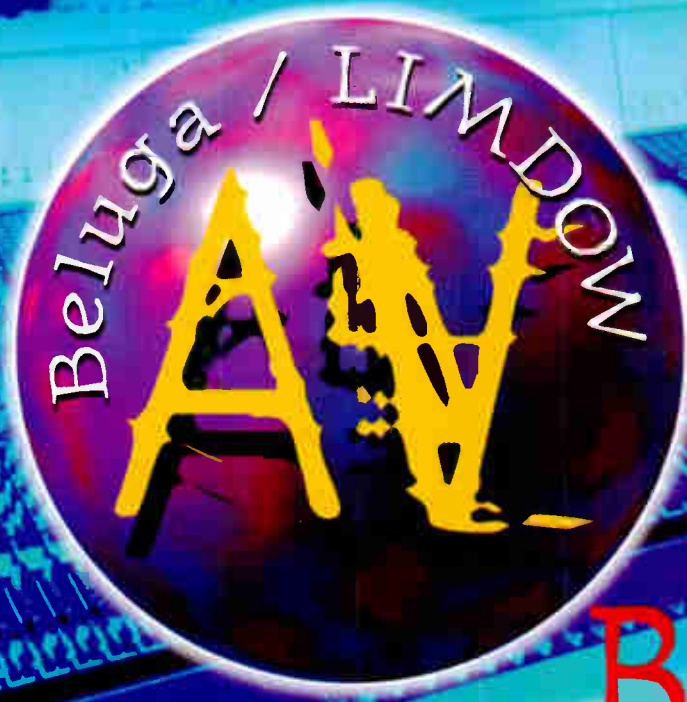
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Sony Music Studios  
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## PREVIEW



### DRAWMER MX40 PUNCH GATE

Drawmer (distributed by Transamerica Audio Group, Thousand Oaks, CA) debuts its MX Series budget processors with the MX40 Punch Gate, a single-rack-space unit with four channels of gating (pairs may be linked for stereo). Each section has controls for threshold, release time and trigger frequency select (gates may also be triggered by external key inputs). Push buttons select Peak or Punch gate opening dynamics, gating range (20dB or 90dB attenuation), exter-

nal key and trigger filter in/out. A dual-engine architecture allows for seven different effect routing configurations. Effects include reverb, delay, chorus, flanger, detuner and pitch shifter, and program changes can be made via MIDI or footswitch controls. Features include a data wheel, large LED display, a 96dB S/N ratio and unbalanced 1/4-inch I/Os.

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### DEMETER TUBE MIC PRE

Demeter Amplification (Van Nuys, CA) is shipping its HM-1 2-channel tube mic

preamp, a single-rack-space unit featuring quality components and ample headroom (up to +28 dB into 600 ohms). Front panel switches select polarity reverse, phantom power, 20dB pad, low-cut and +4 or -10 metering on 10-segment LEDs. Input gain and output controls are rotary pots, and the unit has front panel, Hi-Z instrument inputs. Rear I/Os are XLR and TRS. Retail: \$1,295.

Circle 329 on Product Info Card

### CRANE SONG FLAMINGO MIC PRE

The Flamingo microphone preamp from Crane Song (Superior, WI) is a 2-channel discrete Class A device featuring switches that tailor the sound of the unit: "Sound" changes the amplifier type while "Iron" puts iron (inductors) in the audio path. Front panel controls include stepped input gain controls (6 dB per step over a 60dB range) and continuously variable output attenuators. The single-rack-space unit includes individual phantom power and polarity reverse switches, 22-LED VU meters with clip indicators and transformerless balanced I/Os. Price is around \$2,000.

Circle 330 on Product Info Card

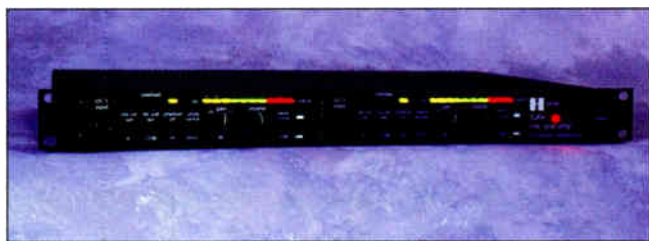
### LA AUDIO PS-1 CHANNEL STRIP

LA Audio (London, UK) offers the PS-1 single-channel strip, a single-rack-space unit that includes a mic pre/line/instrument input section, de-esser, expander, compressor/limiter and 4-band EQ. The mic pre section offers phantom power, polarity reverse, 20dB pad and a DI. All compressor parameters are adjustable, and soft- and hard-knee characteristics are selectable. The EQ section provides high- and lowpass filters, fixed high and low EQ and parametric low- and high-mid sections. LED metering indicates gain reduction and output levels. An optional 20-bit A/D module offers 44.1 and 48kHz sample rates, AES/EBU or S/PDIF output formats, dithering and external word clock input.

Circle 331 on Product Info Card

### TUBE-TECH MEC 1A

Tube-Tech (distributed by TC Electronic, Westlake Village, CA) introduced the MEC 1A mic preamp, a two-



channel key and trigger filter in/out. A Key Listen mode allows key input monitoring, and colored LEDs indicate gate status. I/Os are balanced XLR; key inputs are 1/4-inch.

Circle 327 on Product Info Card

### DIGITECH STUDIO

The Studio stereo effects processor from DigiTech (Sandy, UT) is a single-rack-space unit offering 20-bit digital processing, 99 factory presets and 99 user memory

preamp, a single-rack-space unit featuring quality components and ample headroom (up to +28 dB into 600 ohms). Front panel switches



# PREVIEW

rackspace unit incorporating EQ and compression. The mic pre section offers phantom power, polarity reverse, roll-off filter and 20dB pad switches, as well as a Hi-Z instrument input. The EQ section features high and low shelving and a selectable mid-band boost/cut with variable Q. EQ may be inserted before or after the compressor, which is based on Tube-Tech's Opto Compressor design. I/Os are transformer coupled. Retail: \$3,995.

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## AUDIO PRECISION PORTABLE ANALYZER

Audio Precision (Beaverton, OR) offers the Portable One Dual Domain<sup>®</sup> audio analyzer for analog and digital test applications. The unit features a full complement of digital interface and monitoring functions, including jitter generation and measurement, audio bit error rate and sample rate measurement. Analog analyzer noise residuals measure -118 dBu; digital distortion figures are -130 dB. A Save and Recall feature memorizes 30 test setups with data, an internal clock time-stamps saved tests, and printer drivers are available for laser and ink jet printers.

Circle 333 on Product Info Card

## FOCUSRITE GREEN 6

The latest in the Green Series of low-cost processors from Focusrite (distributed by Group One, Farmingdale, NY) is the Green 6 Quad



Compressor/Limiter, a single-rackspace unit featuring four separate compressor/limiters (any two Green 6 channels may be linked for stereo operation). Each Green 6 channel includes compression ratio, threshold, fast/slow attack, release, auto release and makeup gain controls. Limiters have independent threshold controls. Additional features include VU and gain reduction metering.

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## HOT OFF THE SHELF

ATT's (Audio Toys Inc.) 16MX2 has eight ATI mic preamps, each providing both direct and aux line level outs—in a 1U chassis. A multipin, balanced out can feed any digital multitrack directly; auxiliary outs are available on a 9-pin connector. Each input features a 41-position detented trim control and independent aux level control, phantom power and ground lift switch. Call 310/798-5204...

Purple Audio's MC76 Limiting Amplifier is a replica of the famous blackface "E" revision UREI 1176 limiter/compressor. Ratios are 4:1, 8:1, 12:1 and 20:1, and variable attack and release characteristics mimic those of the original. Retail: \$1,500. Call 212/391-5527... Bellari's LA120 tube compressor/limiter features optical gain reduction, variable threshold and output controls, bypass and comp/lim switches. Retail: \$159. Call 801/263-9053...

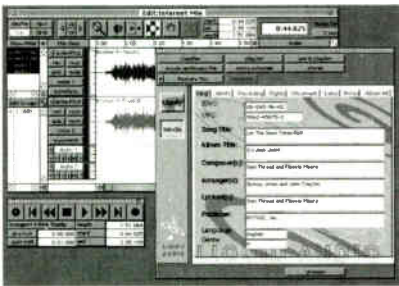
Hafner's P4000 Trans•Nova Diamond amp is a 200 W/ch (@ 8 ohm) convection-cooled amp featuring LED display, gain controls, balanced inputs. Retail: \$1,199, with a five-year warranty. Call 602/967-3565... New preset libraries for Eventide's 4000 series Ultra-Harmonizer: GTR II (\$495) contains 166 presets for musical instruments; the Broadcast Extension Library (\$695) adds all DSP4000 and GTR4000 effects to the DSP4000B. Call 201/641-1200 or visit [www.eventide.com](http://www.eventide.com)...

Denon's DN-T620 cassette deck/CD player combo in a 3U chassis features variable pitch ( $\pm 12\%$  on both transports) and comprehensive

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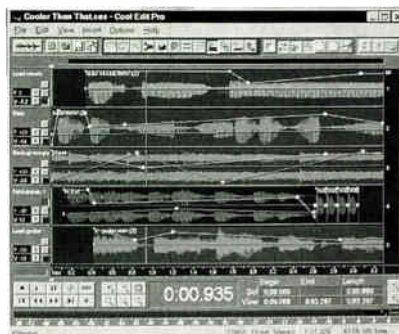
## LIQUIFIER FOR PRO TOOLS

Liquid Audio (Redwood City, CA) introduces Liquifier Plug-In for Pro Tools and adds Internet publishing capabilities to the widely used workstation platform. The latest in a family of Internet music delivery tools, the plug-in lets users prepare audio files in Pro Tools, then use Liquifier to create Liquid Tracks (featuring Dolby Digital encoding) for Internet streaming or download at multiple delivery rates. In addition, users can add media information such as liner notes, artwork and copyright information for display on the consumer's Liquid MusicPlayer.

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## SYNTRILLIUM COOL EDIT PRO

Now shipping is Cool Edit Pro from Syntrillium Soft-



ware (Phoenix, AZ). Based on Syntrillium's award-winning Cool Edit 96 shareware application, Cool Edit Pro is a multichannel digital audio editor, recorder and mixer for Windows 95 and Windows NT. The package offers 64-track mixing capability with Record/Solo/Mute controls and editing features such as crossfade, punch-in, splice, loop, multiple takes, amplitude and pan envelopes. Built-in DSP effects (many of which offer real-time preview) include reverb, EQ, click/pop reduction, pitch shift, stretch/compress tempo and 3D echo chamber. Cool Edit Pro supports ActiveMovie/DirectX, MIDI/SMPTe sync, and multiple sound cards and .WAV devices. Retail: \$399.

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## OPCODE VOCODE PLUG-IN

The first in Opcode's (Palo Alto, CA) new Fusion: Effects™ series of cross-platform DSP plug-ins, Fusion: Vocode brings vintage analog technology to the desktop by re-creating classic vocoder effects. Vocoder "fuses sonic personalities" to create effects such as guitar talkboxes, robot vocals or rhythms derived from sustained chords; extra, adjustable parameters include a 5-band tone control, plus

Level, Resonance, Depth and Mix controls. Users select their modulator or build their own using Vocode's built-in synthesizer. The Fusion: Effects platform retails at around \$149 and supports Opcode's Vision and Studio Vision Pro, plus plug-in formats including Adobe Premiere, Audiosuite and DirectX Media. A TDM version of Vocode is in the works.

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## ALTERMEDIA STUDIO SUITE

AlterMedia (Marietta, GA) releases Studio Suite™ studio management software designed for professional and project studios, post facilities and production companies. The package is a relational, modular system for organizing and managing a facility environment; modules include a Click-n-Book Calendar, sections for managing sessions, production orders, songs and track sheets, room booking, equipment inventory, maintenance, media inventory, budgets and invoicing. Other features include a sample librarian, a built-in spell-checker, recall documentation sheets and a patchbay labeler. Studio Suite is fully networkable across platforms, password secure and Year 2000 safe. The package runs

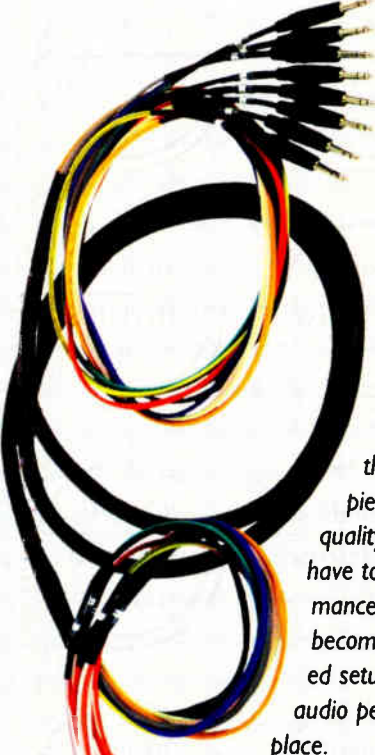
on either Macintosh System 7.5-plus or Windows (3.1, Win95 or higher) platforms; retail is \$349.

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## UPGRADES AND UPDATES

SADiE announces Version 3 software for the SADiE and Octavia systems. V.3 includes SADiE's Dynamic Reallocation of DSP system. [www.sadie.com](http://www.sadie.com)... QSound Labs' QX/TDM V.2.0 is now available for Digi-design's Audio Suite. Visit [www.qsound.ca](http://www.qsound.ca)... Head-space news: The company is offering a free 15-minute kit to put music on your Web site—at [www.head-space.com](http://www.head-space.com). In addition, Netspace is bundling Head-space's Beatnik plug-in with the new Netscape Internet Access Edition and Netscape Communicator Deluxe Edition... New from Hohner Midia is PRODIF 24, a 16-bit Windows-compatible ISA card featuring 18-bit analog ¼-inch outs and 24-bit digital stereo coaxial and optical I/Os. Check out [www.hohnermidia.com](http://www.hohnermidia.com)... Now shipping: Wave Mechanics' PurePitch formant-preserving pitch shifter for Pro Tools. Visit <http://idt.net/~nextwave>... TOA Electronics announces an upgrade of the control software and operating firmware for DACsys II. Version 1.5 is compatible with Windows 95 and offers a choice of baud rates. <http://sysint.com/systems/toa/>. ■

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# GRACE DESIGN MODEL 801

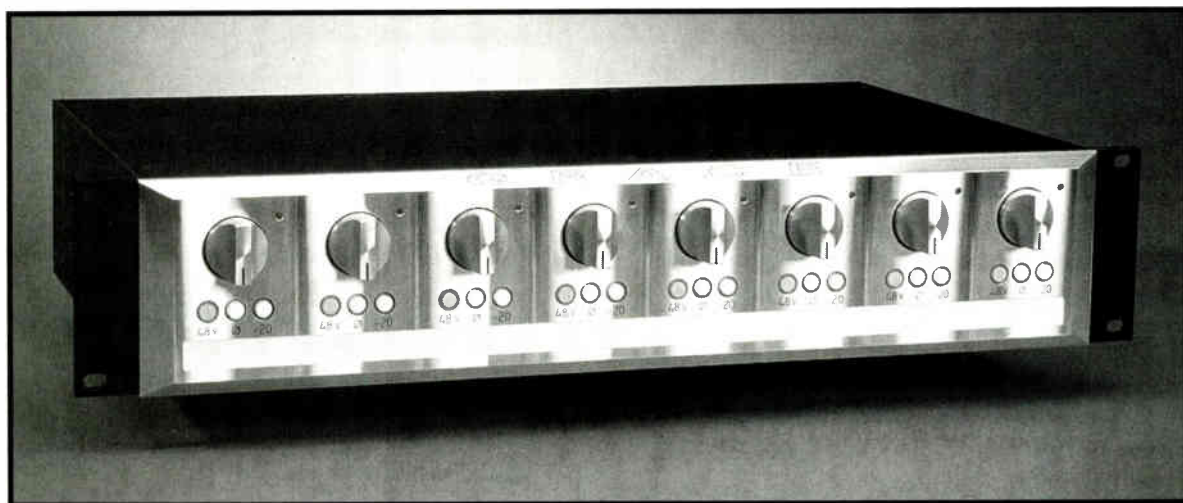
## 8-CHANNEL MICROPHONE PREAMPLIFIER

In spite of its reputation as a laid-back resort, Boulder, Colo., has always been a hotbed of activity in the realm of audio technology. Companies hailing from the area include Boulder Amplification, Peak Audio, WaveFrame (which later relocated to Calif.) and Grace Design. Although it has kept a low profile, Grace Design has been creating high-performance audio recording products for more

driving long capacitive cable runs and load impedances down to 50 ohms.

The 801's front panel is straightforward, elegantly designed and includes illuminated switches for 48VDC phantom power, phase reverse and -20dB pad. The gain controls are 24-position switches with an 18 to 64dB gain range in 2dB steps. A bicolor peak LED glows green at -14 dB and turns

detail is meticulous. The resistor ladders (made from 1% metal film resistors) around the 24-position gain switches are hand-soldered, each providing an additional 2dB step of gain control. There are no electrolytic caps in the signal path, and all signal switching is via sealed, gold-plated relays. Additionally, each preamp channel is on a separate PC board, which reduces crosstalk and simplifies



than a decade.

Currently, the Grace Design product line consists of the Model 201 (2-channel) and 801 (8-channel) mic preamps. Both models are solid-state designs, combining the Burr-Brown INA103 monolithic low-noise instrumentation amplifier and a transformerless balanced output stage featuring two high-speed (2000V/ $\mu$ s) AD844AN trans-impedance amplifiers with high-output current capability. The output devices operate in Class AB mode, which essentially eliminates crossover distortion resulting from the output devices switching on and off as the signal passes the zero crossing point. In addition, the Class AB design eliminates the excessive power dissipation and long-term reliability problems associated with Class A designs. The output stage is capable of

red at +16 dB; a scribble strip can be used with dry- or wet-erase pens. The rear panel is simple, with a 7-pin XLR for the external power supply and eight XLR inputs and outputs—all wired pin 2 hot. The manual includes instructions for making adapters for unbalanced operation.

The half-rackspace, 4-pound outboard power supply is based around a low-noise toroidal transformer. AC power is switchable for 100/120/220/240-volt operation, and the front panel has LEDs indicating the status of the various supply rails. The detachable PS cable is an ample 8 feet long, which allows users to place the power supply well away from the electronics.

Inside the 801, the attention to

servicing.

My complaints about the 801 are minor. There are no markings on the gain controls, so finding a repeatable setting requires counting the clicks. Also, the gain steps are in 2dB increments, so "riding the gain" is not possible. With this in mind, Grace now offers a pull-out trim pot option (\$125/channel).

I used the 801 over a period of months on every type of session. My first assignment for the 801 was an acoustic quartet (guitars, vocals, percussion, acoustic bass and audience mics), recorded live on location. I mounted the 801 in a road case with an ADAT XT, connected via an Elco connector to an XLR snake. This particular session proved to be an ideal test of the 801 and provided an opportunity to try the unit with a combination

BY GEORGE PETERSEN

of condenser and dynamic mics. The results were excellent overall: The vocal tracks were clear and articulate, even with Shure Beta 58s—I'm not sure I've ever heard these workhorse mics sound so good. The acoustic guitar (AKG C-460s) and percussion (Audio-Technica AT-4031s) tracks were revealing. Here, the reproduction of upper harmonics was superb, particularly noticeable on guitar and hand percussion (finger cymbals, tambourine). A single AKG C-414 ULS was used for audience ambience; here again, the cleanliness of the 801 was a major plus, especially when, during mixing, we had to bring up the level of the audience tracks.

In the studio, the 801 proved no less impressive when recording difficult-to-reproduce instruments such as triangle and solo violin. Simple as it is,



A look under the hood reveals the hand-soldered resistor networks.

a triangle will reveal much about transient performance, and the 801/C-414 ULS combination was right on the money. On solo violin and mandola, I had the chance to A/B the 801 with my Millennia HV-3 preamps. Both of these units are leagues ahead of the pedestrian preamps in my Soundcraft 600 console, but using a pair of Earthworks ultra-flat TK-40 condensers, I noticed the 801 had a slightly forward HF character compared to the Millennia. However, this difference is subtle and is more like comparing two excellent 1985 Cabernets. Perhaps a more looming factor is that the 801 retails at \$4,495, which brings the per-channel pricing down to \$560, certainly affordable for world-class performance.

Overall, the Grace 801 sounds great, is built like a Porsche and is priced right. Anyone looking for a high-quality preamp should check this one out.

Grace Design, Box 204, Boulder, CO 80306; 303/443-7454; fax 303/444-4634. Web site: [www.gracedesign.com/pre](http://www.gracedesign.com/pre). ■

# FORMAT TALES

Story as told by Bill Fozznick and  
Jim Hansen, Owners of Advantage Audio,  
Purbeck, California



Once upon a time in the land where

they make **cartoons**, the engineers needed

to transfer their  **boink!** from here



and  to 's and then

to the  master. They were very

confused. All the children would be terribly

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cartoons on Saturday morning. Then to the

rescue  came the good engineers 

of OTARI with the UFC-24 Universal

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digital, it was a wonderful thing",

and the children all sang.



THE END



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CIRCLE #096 ON PRODUCT INFO CARD

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CIRCLE #097 ON PRODUCT INFO CARD

World Radio History



# LA AUDIO CLASSIC II

## DUAL COMPRESSOR

Living up to the name "classic" is no easy task considering that today only a handful of old recording equipment is revered enough to be called classic. The LA Audio Classic range of audio products, manufactured by SCV Electronics in London, aims to recapture the sound, spirit and whole design attitude exemplified by those few select vintage pieces. This philosophy may not be outwardly apparent at first glance, but after my first session with the Classic Compressor II, I found myself as comfortable with its dependable performance as with any "good ol' UREI 1176 or Teletronix LA-2 compressor.

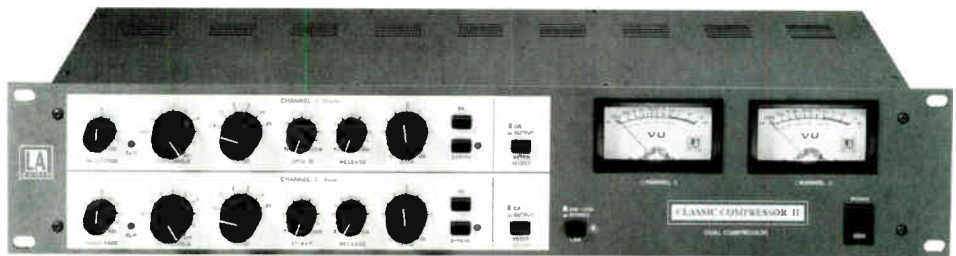
To begin, the Classic Compressor II is a 2-channel compressor in a road-worthy, 2-rackspace steel cabinet. Cosmetically, the unit's blue anodized aluminum front panel is all business with its brushed silver-gray silk-screening, full-sized controls and standard, lighted VU meters. This is easy on the eyes and refreshingly demure considering the current fad of garishly painted and oddly named outboard equipment. Audio connections on the rear panel are via gold-plated XLRs (pin 2 hot). The rear panel also has a single switch for +4dBu or -10dBV operation, but no unbalanced 1/4-inch jacks. The schematic reveals that this single switch changes both the input and output levels together. There are two TRS jacks for insert send and return paths for external connection to each channel's sidechain.

Both of the Classic's channels may be used as two individual mono compressors or linked for stereo operation. The unit has two complete sets of controls for each

channel. They are located one above the other just like an analog 2-track tape deck. I like being able to adjust the two channels separately; I find that ganged stereo output pots are never spot-on together. You can individually adjust input trim level, output level, and interesting to me, the compression ratio.

The Classic Compressor II uses a discrete, FET (Field Effect Transistor) gain control circuit, just like

Trim control and the Threshold control because this is the point where you can alter the compressor's process and the nature of the compressed sound by "artistically" juggling the input level with the threshold control setting. In the context of certain record production styles, the record level is set by input level/threshold settings for the amount of overcompression *du jour*.



the famed UREI 1176LN peak limiter/compressor. IC operational amplifiers type 5532 are used throughout otherwise. The Input Trim Level control provides a range of +20dBu and -20dBu with a center detent position of 0dB. It is like the input control on the 1176, adjusting the amount of compression and the throughput gain of the compressor at the same time. On the Classic, the input trim can be used in the same way when you set the Threshold at 0dB. Increasing the input trim control pushes more level into the detector and therefore more compression occurs. At +18 dB you will start to overload and a small red LED clip indicator will glow. Maximum input level is +20 dBu. More typically, the Input Trim Level control is used to match the output of the preceding device to the input needs of the Classic II. I usually left it on the 0dB detent position for optimum headroom and signal-to-noise ratio. I like and understand the interaction between the Input

Probably the "correct" way to set the onset of compression is to use the large Threshold knob with its range of -40 to +20 dBu at fully CW. This is a smooth-feeling pot with a large white pointer. The Ratio knob is similar, but instead of a pot, a six-position rotary switch is used. The available compression ratios are: 1.5:1, 2:1, 3:1, 5:1, 10:1 and 20:1. I like the switch for re-settability, and it covers all the ratios anyone could want. Next are the Attack and Release controls. Both are marked the same way, with Fast at fully CCW and Slow at fully CW; the attack ranges from 0.4 ms (fastest) to 40 ms (slowest but still kinda fast for certain applications), while the release times are from 40 ms to 4 secs. The final control is output level, a make up gain control with a good center detent position of 0 dB and an operating range of -20 to +20 dB. Maximum output level from the fully balanced transformer output stage is +20 dBu into a 30-ohm load impedance. Total harmonic distortion is measured at less than 0.5% when the Classic is under 6

BY BARRY RUDOLPH

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dB of compression. Frequency response is specified to  $\pm 1$  dB from 20 to 20k Hz, while noise is measured at less than -83 dB.

The Bypass button, when pushed in, connects the input XLR to the output XLR connector and lights up a red LED. This relay-controlled hardwired Bypass circuit is also used when the Classic is first turned on. A turn-on delay time is initiated before the compressor passes audio to prevent any nasty thumps getting to your monitor speakers. Americans may find it odd that the Bypass button is pushed inward instead of outward. We Yanks are used to pushing a button in for Process On and releasing it back out for Process Off. (We also drive on the "right" side of the street.) There are separate Bypass buttons for each channel as well as separate gain reduction/output meter switches. The GR/Output switches toggle the medium-sized analog VU meters between the reading output level and the RMS amount of gain reduction. I would suggest substituting a three-way switch here to include measurement of the input level to the detector as well. Incidentally, all of the Classic's controls and functions operate while the unit is in Bypass mode. This is good for making ballpark settings before insertion.

A link switch unites the two channels' detectors, with Channel 1 becoming the Master and slaving the Channel 2 compressor. I would suggest that both Bypass and GR/Output switches for Channel 2 also be grouped together with Channel 1's Bypass and GR/Output switches when in stereo link mode. Overriding whatever previous switch positions on Channel 2 would avoid confusion as to whether one channel is bypassed or if its meter is indicating output or GR.

Included within the Classic II is a broadband de-esser, with 12 dB of attenuation at the center frequency of 8 kHz. The manual states that "all frequencies are compressed in response to sibilant frequency detection" and advises using high threshold and ratio settings along with a fast attack for proper de-essing. These settings would affect the rest of the audio envelope as well, which may or may not work for you. Ultimately for best de-essing, the manual suggests connecting an equalizer in the sidechain insert and "tuning" it to the exact 'ess' frequencies. I found the de-ess function to be great for a

squashy cymbal sound when I strapped the Classic across a pair of drum overhead microphones. That 8kHz boost caused the compressor to clamp more on cymbal crashes than the tom-toms and rest of the kit. Cool drum sound!

I also used the Classic on vocals, guitars and bass guitars. I liked the way it pushed backing vocals right up close, even with a minimum (3 dB RMS) of compression. This is a good limiter for sample processing where you would digitally transfer your samples directly to your sampler or DAW. Using a heavy amount of compression on electric guitars achieved a density that was perfect in the mix. I also tried some wacky extreme settings for compressed room mics and drum sound treatments, and the Classic did what I wanted without too much distortion and noise.

I liked the fact that both sets of peak indicators have a large amount of hysteresis or lag time before the LED goes out after detecting a peak. Usually I'm not looking directly at the meters when I might hear a possible overloading peak. There is enough time here to catch the LEDs fading out.

The Classic Compressor II was shipped to me with an optional 20-bit analog-to-digital converter. The A/D converter is dealer-installed, and SCV Electronics has promised to make it an end-user-installed item soon so you can add it later on at any time. The current chip set used is a Crystal Semiconductor 20-bit stereo converter and two LED peak indicators, mounted between the VU meters, that monitor the analog peak input to the converter.

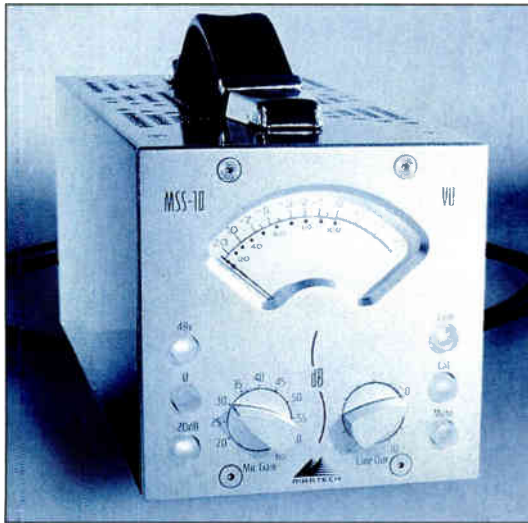
Combining a stereo compressor and A/D converter is a smart choice for project/home studios where the Classic II acts as an important link between console and semi-pro DAT deck. There are few places in the recording/mixing/mastering chain where a single piece of new equipment would make more of an improvement in the overall, final sound quality of your recordings.

The Classic Compressor II retails at \$1,399, and the A/D converter option is \$639 extra.

LA Audio is distributed in North America by Audionova, 2083 Chartier Ave., Dorval, Quebec, Canada H9P 1H3; 514/631-5787 or (toll-free) 888/247-8580; fax 514/631-5789. Web site: [www.scvlondon.co.uk](http://www.scvlondon.co.uk). ■

*Barry Rudolph is an L.A.-based recording engineer. Visit his Web site at [home.att.net/~brudolph/](http://home.att.net/~brudolph/).*

CIRCLE #098 ON PRODUCT INFO CARD



I knew there was something truly special about the Martech MSS-10 mic preamp when bassist Michael Rhodes (Cicadas, Rodney Crowell) wanted my telephone number at the end of a session. I wanted to tell him it was all my doing, but I leveled with him and confessed that I had a new toy. Because the MSS-10 has all-discrete operational amplifiers, coupled with a custom high-level input transformer, it produced a large but clear low end on Rhodes' bass—without any additional EQ. After the session, I read the manual (standard procedure for me), and it stated, "You sense as if a lower octave is audible." I would have to agree!

The Martech MSS-10 offers two signal paths in a single unit, allowing unusual flexibility in routing signals. To avoid the sonic degradation of inverting amplifiers, the mic pre-amplifier section uses two stages of noninverting amplification between microphone input and direct out. The preamp section includes a gain switch (65 dB of gain in 5dB steps), a 20dB pad, a phase reverse and 48V phantom power. The second signal path passes through a line driver that derives its source from either the mic preamp section or from a separate balanced line input, such as an EQ inserted in the path. I found that there was no degradation of signal using the line-out path, and it was a breeze controlling the output gain (the adjustable front panel level control ranges from minus infinity to +10). This secondary signal path section also provides a mute switch, which is great

# MARTECH MSS-10

## MICROPHONE PREAMP

for keeping out extraneous noises.

The MSS-10 measures 4.2x5.25x12 inches and weighs 7.5 pounds (very compact and lightweight) and is extremely retro-looking. It has the look and feel of an old piece of gear and features a large VU meter. The VU Cal switch selects between the mic pre out and line-out levels, useful for establishing unity gain through the signal chain. The unit is enclosed in a sturdy metal box that could survive most abuses. The inputs and outputs are all XLR and include mic pre in, mic pre out, line in and line out. The line-in point allows for inserting external EQ or your favorite distortion device, and the line input switch on the front of the unit selects this insert path; when the switch is not engaged, the mic pre feeds the line-out section directly, via the front panel mute switch and line-level trim control. XLR connectors are wired pin 2 hot, making it a simple hook-up in most studios. Input AC voltage is easily changed from 100/120 VAC to 220/240 by prying off the fuse cover and moving a voltage select wheel. I liked the fact that all of the switches and knobs that are in normal use were located on the front for easy accessibility. No hidden tweak potentiometers!

An upcoming voice-over session with Peter Frampton seemed like a logical place to make a subjective vocal test. The manual claimed that the MSS-10 is an ideal tool for ADR and voice-overs, and this certainly seemed like a good place to start. After recording for a while through a Stephen Paul 87 mic and Focusrite Blue, I switched over to the Martech and recorded the same passage. Immediately, the sound changed—the depth added to the voice was remarkable. It seemed as if there was an apparent increase in bass response and breathiness. I wouldn't call this a

hyped response; it just sounded more natural and brought the voice closer to the listener.

To test the unit's transient response, I brought in drummer/producer Scott Williamson (Unison/Word Records Jazz Series). We decided the best test would be to bang on a snare drum and compare the MSS-10 with an old Neve 33114 and a Focusrite Blue. In this case, the MSS-10's transient response and general overall fidelity were much like the sound of the classic Neve—smooth and never brittle. I used the mic pre with a variety of microphones, both condenser and dynamic, and even with a direct box; it responded well to each in all situations. I'm not sure how Martech has addressed the problem of different mic impedances, but the solution must lie in the custom input transformer. I did open up the box and examine its construction; these guys aren't exaggerating when they say their components are proprietary—almost all the components in the MSS-10 are made by Martech, and the craftsmanship is impressive. My grandchildren will still be using this unit when I'm old and gray. (Who am I fooling? I am already old and gray.)

Though the \$2,250 price tag for the MSS-10 is considerable, the sound quality compares to a vintage Neve, which can cost as much as \$3,000. In summary, the Martech MSS-10 is the perfect complement to a quality microphone for recording consistently good vocals and instruments.

Martech, distributed by Martin-sound, 1151 W. Valley Blvd., Alhambra, CA 91803; 818/281-3555; fax 818/284-3092. ■

*John Jaszcz (pronounced "yosh") is vice chairman, AES, Nashville, and a freelance mix recording engineer. He has worked with artists from Bootsy Collins and George Clinton to Billy Ray Cyrus and John Michael Montgomery.*

BY JOHN JASZCZ

# JÜNGER d-01

## DIGITAL DYNAMICS PROCESSOR

Once in a while, a product comes along that causes a minor revolution in audio processing. And with the increasingly rapid emergence of products offering an all-digital control path, the revolution is becoming somewhat common place. This is especially true in tools for mastering and post-production.

Underscoring the advantages of all-digital audio processing is a new product we've been using in our editing room—the Jünger Model d-01 Digital Dynamics Processor. A single-rackspace design, this German-made dynamics controller employs a full complement of digital I/O, including AES/EBU, S/PDIF, SDIF-2 and Yamaha Y2 connectors.

outputs with separate left and right level trimming are also included. Maximum analog output of our unit is +16 dBu, but Jünger tells us that this has recently been improved to +22 dBu. (Note: on the latest revision d-01, left and right channel processing may be linked or unlinked.)

Operation of the d-01 is simple—perhaps even a bit too simplistic (more on that in a moment). Push-button incremental switching is offered for all adjustments. Numerical LED readouts display all operating parameters. Two 16-segment bar graph meters show full-scale input, output, expansion, gain reduction, clipping and peak hold levels. Digital input format, as well,

Classical Music, (3) Pop Music and (4) Speech. Jünger claims to have carefully characterized each preset for ideal operation in each category. (On newer d-01 models, presets numbered 5, 6, 7 and 8 correspond to the same control dynamics, except the left and right audio is unlinked.) Generally speaking, the release times are longest on preset 2 (Classical) and shortest on preset 4 (Speech).

At first glance, one might think only four Multi-Loop processing presets would be restrictive. Alas, we have encountered situations where none of the four presets tailored the dynamics exactly as desired—especially in the wide variety of modern acoustic music



The d-01 will accept and process up to 24-bit 2-channel data in AES, S/PDIF, and Y2 formats. Processing is limited to 20 bits in SDIF-2 format. Any sample rate from 30 to 50 kHz is acceptable. Internal processing is accomplished via a Texas Instruments 32-bit floating-point DSP. The d-01 will not process sample rates above 50 kHz, though I'm told that a 100kHz dynamics controller module is in the works at Jünger. An optional remote control is also available.

A rear panel de-emphasis switch is thoughtfully included for digital data that lacks control bit provision (such as Y2). The d-01's digital output format may also differ from its digital input, making this device a useful format converter. Slave sync on all formats, including word clock, is standard. Balanced analog

is automatically sensed and displayed. If multiple digital formats are inserted, front panel switching can select the desired input.

Dynamics control in the d-01 is based upon something Jünger calls "Multi-Loop" processing. Unlike other DSP techniques that employ multifrequency (split spectrum) processes, the d-01 is said to employ several interactively combined control circuits with variously optimized low and medium level expansion, compression, variable linear amplification, and peak limiting—working simultaneously to achieve what Jünger calls "a permanent, automatic optimization of the parameters of all control circuits."

A total of four dynamics "presets" are offered: (1) Universal, (2)

programming. However, keep in mind that these presets work in consort with additional front panel controls, including compression ratio, expansion, limiting and input gain. Based on the results of our almost daily usage, we agree that Jünger's presets offer ideal or near ideal dynamics tailoring in the majority of applications encountered.

Besides, the Jünger folks assure us that the number of internal DSP permutations and dependencies required for Multi-Loop processing are much too complex for front-panel alteration. Nevertheless, it would be nice to have more presets with further optimized "in-between" parameters, something like "Classical 1, 2, 3, 4, 5" and so forth.

### IN SESSION

We have logged more than 100

BY JOHN LA GROU

classical and acoustic music-editing sessions using the Jünger d-01. Our most frequent d-01 application is posting symphony and acoustic ensemble performance recordings for FM broadcast. A smaller number of CD, film and industrial projects fill in the gaps.

In typical operation, we find the d-01 to be about as musically transparent as can be expected; certainly more accurate than any analog compressor we have used. Granted, when extremely heavy levels of compression and limiting are applied, the d-01 begins to offer what seems a certain personality. Though, in fairness, judging the innate qualities of "pure compression" vs. a particular compressor's unique sonic artifacts is difficult.

To achieve its well-behaved dynamics performance, the d-01 employs a 2ms look-ahead "preview time delay" from input to output, during which time DSP optimizes performance. In a few real-time applications, such as voice-over, this delay is not troublesome. However, in many real-time applications, it is generally unusable without overall correction of simultaneous sources. Of course, when using the Jünger in free-running (non-synched) post-production and mastering, preview delay is never a concern.

The d-01 offers four switchable compression ratios (1.1, 1.3, 1.6 and 2.0) plus a "maximum" compression setting that is said to be effective "over the entire range of input signals, not simply at a certain threshold level. Dynamic structures of the input signal (e.g., musical dynamic evolutions) are converted proportionately, so that even after compression the ratios are maintained, only slightly condensed, leaving on the whole a transparent, seemingly uncompressed sound impression."

On a recent editing session, we were asked to correct an odd little symphonic master DAT. The orchestra was peaking about -20dB FS for the first portion of the performance. A short while into the movement, a front-of-stage Taiko drumming corps made their boisterous entry—at which point the digital meters appeared to be stuck at 0 dB. The drums and orchestra would trade off, with FS program alternating between 0 dB and -20 dB. A broadcaster's nightmare! Our Aphex, NTP and dbx analog dynamics units all became relatively congested under this magnitude of dynamic correction. The d-01, however, came to our rescue.

We simply adjusted the input level of the d-01 to nearly maximum gain of +15



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CIRCLE #899 ON PRODUCT INFO CARD

**FIELD TEST**

dB, set the compression ratio to 1.6 and made sure that the peak limit feature was engaged. At once the orchestra (without drums) was brought forward and made naturally present. Then, as the raucous drumming began, the d-01 provided massive amounts of gain reduction in a manner that didn't sound traditionally analog. And while subtle timbral artifacts seemed faintly present, the clarity and stability provided under such extreme conditions was remarkable. No analog dynamics design could remain as stable and sonically unforced

under such demands.

On pop stereo mix applications, the d-01 seems equally at home. A project that included a lead female vocalist, drums and bass guitar was comparatively mixed into a Jünger d-01 and an Aphex Compellor. All sources were converted in 20/44.1 digital using the Millennium Media HV-3C (via its line-level inputs) and output to 16 bit via the HV-3C's internal UV22 process. The Aphex was employed pre-converter, the Jünger post. Of these two methods, the d-01 (set to preset 3) was the preferred choice for natural presence, while offering the least amount of timbre artifact.

Voice-over is another good test of dynamics performance. Our typical VO session employs a Beyer M88 or Sennheiser 416 into the Millennium HV-3C pre-amp/converter. A direct digital signal is taken from the Millennium into a Micro Technology Unlimited digital editor. We select a suitable d-01 gain, set the compression ratio usually to 1.3 or 1.6, and select preset 4. In every VO the d-01 provided a solid, effortless, broadcast-quality spoken presence.

Another thing the d-01 does quite well is expansion. With selectable expansion thresholds of -30, -40, -50 and -60 dB, we found the d-01 expansion character to be just as inversely effortless and transparent as its full-scale compression and limiting functions. For an unknown reason, the Jünger d-01 manual shows expansion presets to be -20, -30, -40 and -50.

Some engineers prefer to work in a strict digital headroom environment. The actual level requirement varies broadly among engineers, and finding a consensus among mixing and mastering engineers is impossible (we've tried!). To address this headroom requirement, Jünger offers front panel adjustment that varies the reference maximum digital output level from 0 dB FS to -15 dB FS. When a lower reference level is selected, the peak limiter assures that audio remains under the selected level. Further, in this condition a meter level of 0 will correspond to the FS output level selected. In other words, if digital reference is selected to be -10 dB FS, the meter will show 0 when -10 dB is reached.

**THE FINAL WORD**

Overall, the Jünger d-01 is a pioneering product that helps define the character and function of digital dynamics processing. There is no analog dynamics processor I know of that can approach the sonic performance of the d-01. The d-01's remarkably transparent, stable dynamics control is suitable for most demanding audio applications.

Priced at \$4,000, the d-01 offers world-class dynamics control befitting the finest mastering rooms and studios. For those who require such performance now, this is one investment that shouldn't wait.

Jünger, available from GPrime Limited, 212/765-3415 or Sascom Marketing Group 905/469-8080.

*John La Grou is a recording engineer, hardware designer and occasional contributor to Mix.*

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CIRCLE #100 ON PRODUCT INFO CARD

# NEW LARGE-SCALE MONITOR MIX CONSOLES

## Manufacturers Get on the Bus for In-Ear Monitoring

It may seem hard to believe now, but there was a time when performing bands listened to the same mix as everyone else. Until the early '70s, few sound companies or bands had the expertise or technology to provide a separate mix for “foldback” purposes, and most artists put up with the situation. Enterprising sound engineers would tilt the onstage portion of the P.A. toward stage-center to provide something resembling sidefill monitors, but few mixing consoles had enough prefade aux sends or matrix outs to provide a discrete monitor mix.

Front-of-house consoles with as many as 16 aux sends are now common, but, as monitor mix engineers are well aware, the list of dedicated monitor mix consoles suitable for professional touring applications and installations is still a short one. Until recently, there have been only a handful of large-format monitor boards—those that offer more than 12 discrete

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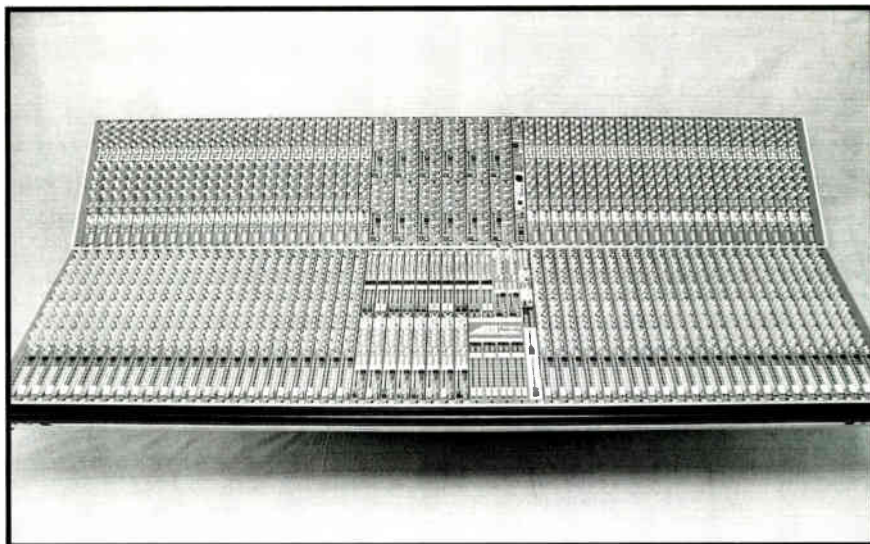
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**Audio Toys Inc. Paragon Monitor**

mix buses—available in the U.S. market. Cast your eye down the equipment list of any major tour or installation, and the same names—Crest, Harrison, Midas, Ramsa, Soundcraft and Yamaha—appear again and again in the monitor mixer slot.

But the comparatively recent (and rapid) growth in the use of in-ear monitors has effectively doubled mixing bus requirements. Although many artists can work with only a mono in-ear feed, and some singers combine one ear-mold with a traditional wedge, it is generally agreed that stereo is preferable for in-ear applications. So, an eight-piece band that used to get by on six or eight wedge monitor mixes now needs eight stereo mixes, requiring 16 buses. In addition, in-ear mixes often need added delay and reverb effects, which use up even more aux or mix buses, though sometimes a direct feed or matrix send will suffice. A combination of stereo in-ear and traditional wedge and sidefill mixes can easily use up all of the 12 to 22 mix buses that a "traditional" large-scale monitor or FOH console can provide.

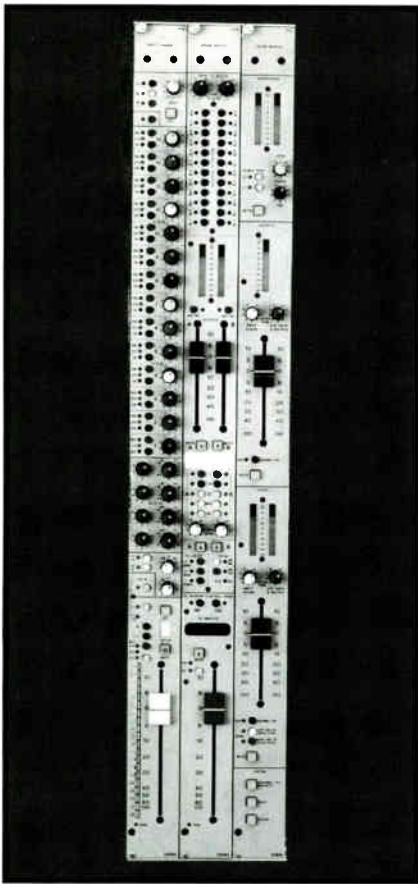
As always, a new market demand represents sales opportunities, and ATI, Cadac and Midas have all recently developed new monitor mix consoles that provide at least 18 discrete mixes (they also offer many features designed to ease the task of the poor engineer who must monitor and control all of these disparate mixes). Spirit by Soundcraft has introduced a new 12-bus model, and Crest's new V12 console will soon

be available in a monitor-specific format. Amek, DDA and Yamaha are also rumored to have monitor mixer development programs in progress.

This article describes four newly available monitor consoles that feature a minimum of 12 mix buses. New boards that are primarily designed for FOH applications have not been included. Readers may also want to refer to Mark Frink's January '97 *Mix* article ("The State of the Art in Live Sound Consoles") and February 1996 and April 1997 8-bus console survey articles.

The new Paragon Monitor console from Audio Toys Inc. (Columbia, Md.) is designed as a no-compromise stereo monitor board—the 16 stereo mix buses (configured as 8 stereo and 8 stereo/16 mono) and an additional two stereo/dual-mono aux buses are all fed by dual-concentric pots on the input strips (level control upper, pan lower). Pairs of sends may be switched to pre-EQ-dynamics/prefade or post-EQ-dynamics/prefade or post-fade via a three-position slider switch. Input channel features include phantom power and polarity reverse switches, and the mic pre offers a 41-position detented pot; padless, it accepts line level. Mono input channels feature 4-band parametric EQ with shelving on each band, plus highpass and lowpass filters (stereo input channels feature 4-band sweep EQ). Each channel also features a complete dynamics section that offers compression and gating, with sidechain access. Each channel strip may be assigned to one or two





**Cadac M-Type**

stereo mix buses, and there are two direct outputs per channel (stereo or dual mono) with pre/post-fader switching to provide additional routing flexibility. Eight VCA groups may be used to group channels and for muting; moving fader automation is available.

The output section is equally comprehensive and includes insert points—the rear panel of the console offers a veritable patchbay of channel and group insert connectors. Considerable thought has been put into the solo functions, which allow the operator to monitor signals at almost any point in the chain. Solo level trim controls on the output bus masters are provided, as well as master level controls for both wedge and in-ear mixes. A foot pedal may be used to control the wedge solo mix volume, a thoughtful touch for a monitor mixer working with both systems simultaneously. The talkback system is ClearCom-compatible. Offered in one frame size and measuring 88 inches by 43.4 inches, the Paragon Monitor can accommodate 72 inputs and may be specified in a number of

stereo and stereo/dual-mono configurations. A “standard” console is priced at just over \$100,000.

The new M-Type Monitor Board now being introduced to the U.S. market by Cadac (Luton, Bedfordshire, UK) is based on the company's F-Type FOH console frame—modules are interchangeable, so an M-Type can be converted into an F-Type, and vice versa. There is no standard configuration for a Cadac console—configuration is determined by the user—and a maximum of 112 input channels may be linked in a multiple-console setup. Modules may be positioned anywhere in the frame, and frames also may be special-ordered in any size from 16 to 63 modules wide, allowing for an unusual range of flexibility. (Cadac consoles are frequently specified for Broadway and theatrical installs, where space is at a premium.) Construction is sturdy and modular, and any defective module may be noiselessly removed without powering down, easing field repair. The M-Type grounding scheme conforms to the rigorous European standard; according to an observer, the M-Type

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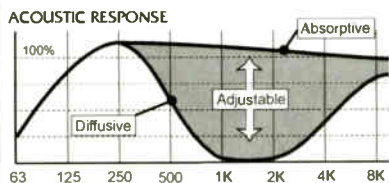


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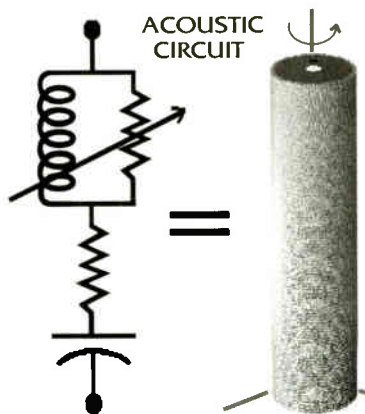
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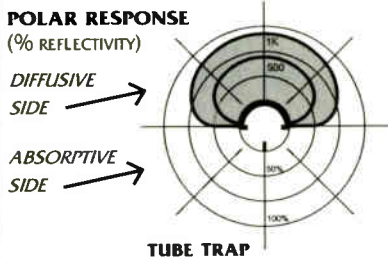
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was the only console on the current Rolling Stones tour that did not induce a buzz in the sound system during tech rehearsals.

Each M-Type input channel offers 28 independent sends (or 14 stereo mixes, or a combination of six stereo and 16 mono mixes), and a combination of direct and matrix outputs can provide 52 separate outs. Input channels feature one input (which accepts both mic and line level), an insert path, 4-band parametric EQ with highpass and lowpass filters, plus comprehensive, prioritized PFL and solo functions. Output controls include up to 12 VCA groups, plus two VCA stereo mix masters. Extensive use of LEDs and illuminated switches indicate status, and VCA masters include alphanumeric LED displays. Cadac's automation can recall up to 10,000 cues and includes motorized fader and MIDI-control options. Price depends on frame size, module complement and options, starting at \$120,000.

Midas (Buchanan, Mich.) recently introduced the 20-bus XL250 monitor console in 44- and 52-input frame sizes. Designed for both in-ear and traditional wedge applications, the XL250 is positioned as a companion to the XL200 FOH mixer and is priced only slightly more. Though lacking a matrix, VCAs and automation, the XL250's clean design and comprehensive functionality should recommend it to a wide range of users; it certainly offers a low-cost alternative to currently available 20-bus mixers.

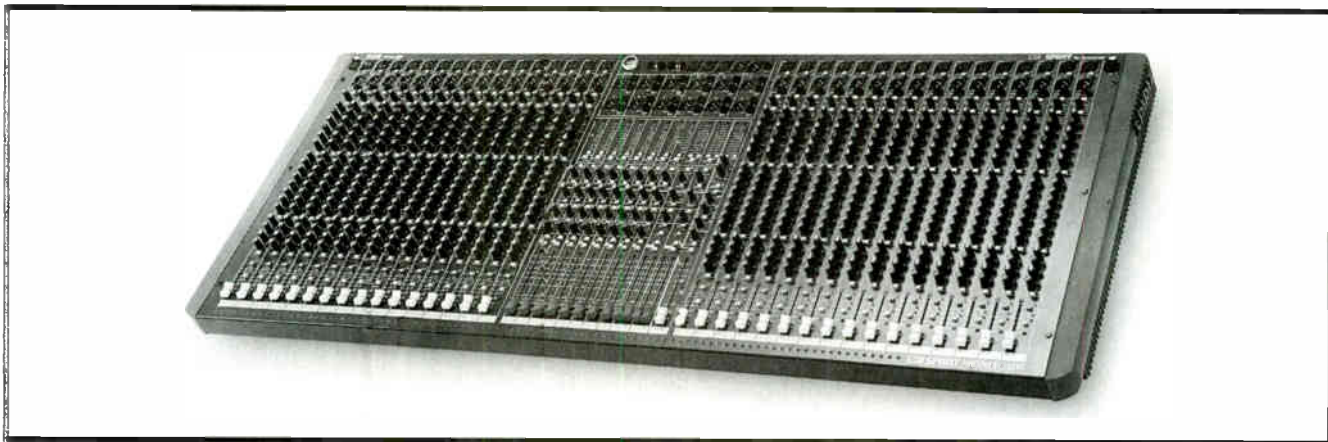
The XL250's approach to stereo/mono configuration is simple but effective. There are 16 individual

mono mix bus sends per input, plus two aux bus sends (1 and 2), allowing for the straightforward creation of up to 18 mono mixes. Consecutive pairs of buses may be globally assigned as stereo, in which case the two independent level controls convert to a pan control (left) and level (right), eliminating the difficulties of creating accurate stereo fields with only left and right level controls. Inputs can also be assigned to an additional stereo master mix bus (19 and 20), and, like most monitor consoles, the XL250 is quite usable as an FOH console.

The XL250's new mic preamp offers a gain range of 45 dB, and the input strip includes individual phantom power, 25dB pad and polarity reverse switches. The EQ section is derived from the popular Midas XL3 equalizer and features sweepable high- and low-band EQ, plus parametric high-mid and low-mid controls. A highpass filter can be inserted before the insert point and equalizer. Inputs and groups may be assigned to one or more of the eight automute masters, and each input offers an additional direct line-level output via a rotary fader. Stereo input modules accept both mic and line sources, offer only one mid-band parametric EQ and lack a direct output control, but are otherwise identical to the mono input strips. An Auto Cancel solo mode overrides selected solo switches, and a Priority Add mode allows for progressive buildup of solos; PFL mono, AFL stereo and solo-in-place modes are all supported. The 52-input XL250 (44 mono, 4 stereo) is



Midas XL250



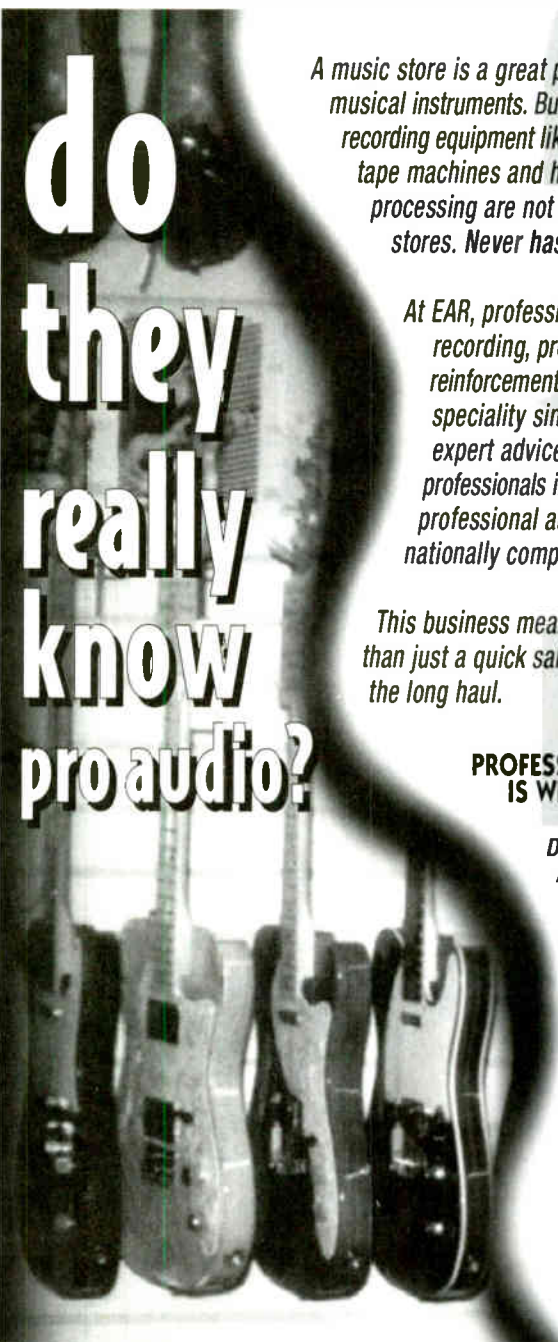
*Spirit by Soundcraft Monitor2*

listed at \$50,135; the 36 mono/4 stereo model is \$44,939.

Spirit by Soundcraft (Auburn, Calif.) has introduced the Monitor2, a 12-bus console available in 24-, 32- and 40-channel frame sizes. Inputs feature eight mono and two stereo send controls; prefade select switches work in groups—1-8 on one switch, the two stereo buses on another. XLR inputs are paralleled to XLR outputs on the back of the console (with individual ground lifts), eliminating the need for a stage splitter box in certain applications; inserts are via a single TRS connection. There are individual phantom power and polarity reverse switches, the padless mic pre offers a 66dB gain range, and the EQ is 4-band (mids sweepable), with a switchable 100Hz highpass filter. Channel faders are 60mm, and LEDs indicate signal presence and mute and PFL switch modes.

The Monitor2's eight mono and two stereo output sections offer 100mm faders and a sweepable highpass filter, a 6dB Dim switch for immediate feedback control, engineer's monitor level control (including pre/post-EQ select) and 12-segment, tri-color LED meters. One of two stereo returns may be selected to the bus via a common trim control, and a pan control routes the first eight mix buses to 11-12 for FOH applications. The mixer also provides for house mics to be added to in-ear mixes, though the facility may also be used for additional effects returns. Other features include talkback to group, XLR out, stereo cue wedge feeds and TRS insert and return connectors for graphic EQ inserts. Prices start at \$4,700 for the 24-input model and rise to \$8,000 for the 40-input version. ■

*Chris Michie is Mix's technical editor.*



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—FROM PAGE 62, RAY CHARLES

found the best tape and transferred it meticulously, and being a mastering engineer, I was very happy that he took it as it was. He didn't try to decide how it should be enhanced; they left that to me. I was pleased, because they made my job easy, and yet there was very definitely something for me to do, and Ray trusted me with it."

Sax's equipment is mainly a collection of purpose-built analog gear that he and his brother constructed when they opened The Mastering Lab for business 30 years ago. In fact, the studio celebrates his 30th anniversary this month. "I call this facility the Home of Yestertech," Sax laughs. "We build our own equalizers, our own limiters, our own transfer chain completely, and much of it is the same as it's been for 30 years." He does use state-of-the-art converters at the end of his chain. Those are modified 20-bit converters from George Massenburg Labs.

Sax describes his mastering methods as "picking a middle ground—what I call democratic. These were obviously recorded over a period of 40 years: different studios, different engineers, and some were mono, some have no bass, some have tons of bass and no top, so you find that middle ground and move everything into that ball park so that you're not favoring any part of the audio spectrum. The common element, obviously, is Ray. When you listen to the boxed set, you'll hear the consistency of the vocal sound. This is the heart and soul of what mastering is. It's not a tech solution. It isn't like I put this brand-new thing in the circuit and it took care of it automatically. It just requires absolute use of your ears."

At the end of the day this group effort makes *Genius & Soul* one of the most lovingly crafted boxed sets out there. It's a package that speaks volumes for the entire industry's passion and reverence for Charles' recordings. A Stevie Wonder quote from the liner notes: "Ray was one of my first idols. He changes the world by touching hearts. His music has universal appeal, because it's music that matters—music of the soul and the human condition. Ray Charles is a master." ■

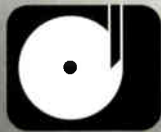
Barbara Schultz is an associate editor at Mix.



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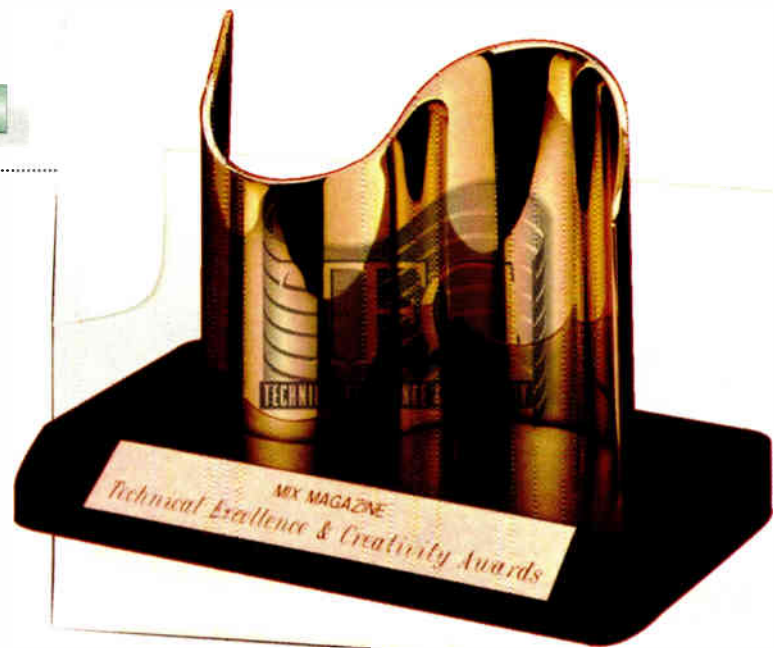
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World Radio History



## ...THE ENVELOPE, PLEASE

First, let me congratulate not only the winners of this year's TEC Awards, but also all the nominees. After several years of looking at the industry from this side of the fence, I know how much blood, sweat and tears go into each endeavor; my heartfelt congratulations go out to every name, organization and product that was on this year's ballot. I often say that, as with the Oscars and Grammys, it is more of an honor to be nominated than to win. Robert Scovill assured me that if he won again he would be getting the TEC tattoo. *[Well, he won. Let's see the tattoo!—Ed.]* In the spirit of the awards show tradition of thanking one's friends and benefactors, I would now like to offer my own short list of nominees for recognition.

In my New Artist category, I would like to nominate Paris-born, Toronto-raised and Berklee-educated acoustic guitarist Jesse Cook and his self-described "Rumba-Flamenco-pop" instrumental music that is the next step beyond the Gypsy Kings and Ottmar Liebert. Schooled as a composer and engineer, Cook recorded his first album, *Tempest*, at his home studio; the first pressing sold out upon release. I caught his performance at Portland's Key Largo on my birthday, in the midst of a whistle-stop tour of coffeehouses, in-stores, festivals and clubs in support of his second album, *Gravity*, on Narada. Cook was play-

ing with backing guitarist Bill Katsioustas and percussionist Arturo Avalos. Road manager and FOH engineer Pacy Schulman simply carries a rack of 16 compressors—I envy him his job. In a year of outstanding shows, this one was ear-candy. Whenever I use Cook's CDs for walk-in music, I get a stream of patrons at the mix position wanting to know the name of the album; a cassette tape of the music makes excellent truck-driving medicine. Use it in good health.

With so much competition and proliferation out there, mic pre-amps have lately gotten their own TEC Awards category. In this one, I hesitantly mention the John Hardy Company. (I take pause because of the recent, offensive trend in our business to take well-engineered products and rip them off with cheap imitations, though this is not likely with Hardy because of the proprietary 990 op-amp he employs.) Hardy basically makes one product, the 4-channel M-1 mic preamp, and has two part-time employees. You may never see his products in trade show reports or new product listings, yet he consistently displays at the AES show, regardless of sales. Rather than reinvent his mic pre, he refines it and gladly offers to upgrade previous customers. He is intimately familiar with every aspect of his craft, from the PC board up, and he will take

the time to explain any of it to those genuinely interested. This is not an endorsement—there is at least one mic preamp that is better, but Hardy manufactures it for Jensen. I will tell you that I paid the same price for my unit that Randy Ezratty at Effanel Music did for each of the 13 that he used in his remote system for recording Garth Brooks in Dublin this year.

I would suggest that the best investment anyone can make for their sound system is a really good mic pre for the "money" channels, regardless of brand. Just put it between the mic and the console, with the gain on the desk dialed down. Though I have many lovely bits of processing in my personal outboard rack, the one comment I consistently get is, "What did you do to make the vocal mic sound like that?"

### A ROAD STORY

Instead of dwelling solely on particulars, I'd like to give a bit of the bigger picture, as well: I spent last summer working with a number of different sound companies in the Northwest as an independent on a variety of one-offs, ranging from Pavarotti to Ani DeFranco. I particularly enjoyed meeting the engineers who rough it out there without being able to carry their sound system with them to every show. This kind of work truly separates the men and women from

BY MARK FRINK

—CONTINUED ON PAGE 151

## TOUR PROFILE

# LIVE STRIP DOWN

## The "Secret Samadhi" Tour

Following the release this past January of *Secret Samadhi*, their latest disk on Radioactive Records, Live embarked on an ongoing world tour of the same name. This time out, the band's sound combines time-honored rock 'n' roll technique with new technology and the sheer brute power of a Showco Prism P.A. "From an audio standpoint, the band wanted to start fresh with this tour," explains FOH engineer Jon Lemon, a native Australian with 20 years of experience pushing faders for the likes of The Cure, Depeche Mode, the Pet Shop Boys and many others. "New record, new sound—a straight-up rock band this time. So I swept away a lot of the outboard equipment and effects they had been using and just turned things back. It is really quite basic in a lot of ways."

Lemon took over at FOH when the band hit the road in February. Of all the audio directives issued by the band at the outset of the tour, primary was their desire to capture the sound of *Secret Samadhi* as much as was possible in a live setting. "There are some really good sounds on the album," Lemon says. "They spent money on it. And while it sounds slightly expensive, it's still rock." Having gained a reputation for amassing formidable arrays of processing elements during the course of his career, Lemon eschewed all that this time out in opting for a frugal assembly of components designed to meet the band's needs. With a 48-channel Midas XL-4 serving as the point by which all input is sorted and integrated, FOH effects include only a pair of Lexicon PCM 70s, a Lexicon 480L, TC 2290, AMS RMX 16 and an Eventide SDE 3000. Outboard gear centers around Summit tube limiters, Summit EQF 100S units (for providing added kick drum punch), Drawmer gates, dbx compression for guitars and a



PHOTOS: PAUL NATION



Above: Ed Kowalczyk Left: Jon Lemon Right: Brendan McCabe

Varicurve system from BSS. Power for the Showco Prism rig is supplied by Crown and incorporates everything from a hardened collection of road-trundled PSA-2s to considerably newer 36x12s, found in numbers capable of lighting up Manhattan and the outer boroughs.

On previous tours, Live has used as many as 40 inputs. "There were about five channels of bass," Lemon says, still sounding surprised. "The first thing I wondered was 'why?' Less is actually more with a band like this. If you have five channels of bass (all of which are using different processing and amps), and you put them all together, you're creating many different delays. Sure, those delays are small, but it's plenty enough to knock the phase out." During his downsizing, Lemon reduced bass channels to one direct and one from the amp. Guitar channels went on a strict diet too, shedding weight down to a slender number of three for guitarist Chad Taylor's left and right Leslie (both of which use direct lines) and his Marshall amp, which relies on an AKG C-414 to capture content. When all was said and done, a full mix was created with just 28 channels.

When mixing, Lemon seeks a strong bottom end with clear vocal intelligibility. "That's part of my deal," he says. "I'm known for winding up with this big sound that doesn't lay everyone against the back wall. There's a big bottom end—the Prism System is great for that. I'd like to think this show is fairly listenable. It has good fidelity. They play loud, louder onstage than I'd like. Any engineer would say that. But I would never hassle them—or any other band—to turn it down, because if that's what it takes for them to get their vibe going, I'd rather have

them be comfortable and perform

BY GREGORY A. DETOGNE

—CONTINUED ON PAGE 150

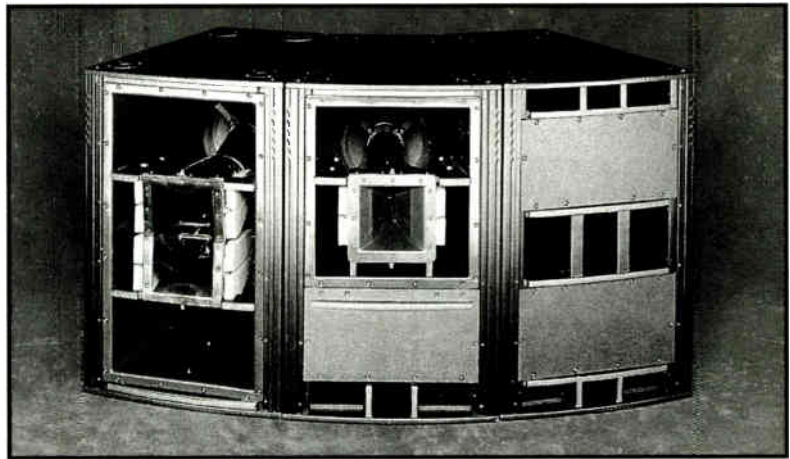
# NEW PRODUCTS AT AES NEW YORK

“Strange times in the sound reinforcement business,” Howard Page cryptically remarked as he picked up Showco’s TEC Award for Outstanding Institutional Achievement, Sound Reinforcement Company. Page was no doubt alluding to the defection of long-term Showco clients The Rolling Stones (now touring with db Sound and the new Electro-Voice X-Array system), but he could just as easily have been referring to the evolving shape of the modern large scale P.A. system. At least two new speaker products on display at the AES embody technology that has never previously been used for large scale P.A. applications, and a third apparently incorporates a technology that was described by a company representative as “magic.” Strange times indeed.

## BEAM ME UP!

Meyer Sound’s (Berkeley, Calif.) SB-1 Sound Beam, is a giant parabolic reflector with a 12-inch woofer embedded in the dish and a 4-inch compression driver firing back into the reflector. Including integrated amplification and processing, the SB-1 is designed to complement a full range system by adding tightly focused HF energy in listening areas that normally lack HF because of attenuation over distance. System frequency response is 500 to 15k Hz at 100 meters, max. SPL is 110 dB at 100 m and -6dB points are only 10° off-axis. Meyer also showed its new self-powered MSL-6, the company’s largest current P.A. system, and introduced the new UPA-P Series, a self-powered variant on the successful UPA series.

EAW (Whitinsville, Mass.) has also addressed the age-old problems caused by those inconvenient laws of physics, the inverse square law and the inevitable absorption of HF energy by air over distance. The company’s new KF900 system is based on the premise that, for total control of coverage and frequency response in both horizon-



*Electro-Voice X-Array*

tal and vertical planes, the system must necessarily be treated as a large number of “cells.” Thus, though the KF900 system includes five cabinet types (KF910 long-throw HF, KF911 downfill HF, KF913 medium-throw/downfill HF, KF920 long-throw/downfill MF, KF930 LF module), rows of like cabinets (and even components) are divided into individual cells; each cell is separately processed with EQ and delay. According to EAW, a KF900 array can be electronically manipulated to create a full frequency coverage pattern that varies no more than a few dB from the front to the back of the audience. In other words, the inverse square law has been repealed! The technology is complicated—EAW has developed an entirely new DSP engine to monitor and control the KF900 system—and is not yet fully proven. But the company claims successful implementations of its Phased Point Source Technology (PPST) in an Athens, Greece, stadium installation and on the road with the ‘97 Promise Keepers tour.

Electro-Voice (Buchanan, Mich.) has been reaping favorable press clippings for its new X-Array speaker system, currently on tour with db Sound and the Rolling Stones. Reportedly the fruit of 2.5 years of

R&D, the X-Array results from many iterative redesigns that eliminated structural and audio-induced resonances (the “technology” for this resonance removal has been dubbed Ring-Mode Decoupling™). System components include three identically-sized trapezoidal cabinets (Xf: far field; Xn: near field; Xb: bass) that contain all-new EV components in various novel configurations, all equipped with integral rigging hardware. (A complementary double-size subwoofer cabinet was also produced to db Sound’s specs.) Crossover, EQ and other processing functions are handled by Klark Teknik DN8000 digital processors, and system amps are EV P3000 models. The system tuning, crossover, and arraying theory and procedures are not yet fully known, but Stones FOH engineer Robbie McGrath is apparently getting exceptional results, according to several newspaper reviewers.

Firehouse Productions (Hyde Park, N.Y.) also supplied speaker cabinets for the Stones tour; as many as 100 of the company’s two new monitor cabinets are in use on the “Bridges to Babylon” stage, and Firehouse’s Bryan Olson reports significant interest from other major rental companies. Olson’s design philosophy marries top-quality components from multiple vendors (cabinets are built by EAW) with

BY CHRIS MICHIE

—CONTINUED ON PAGE 148



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# THE WALLFLOWERS

TEXT AND PHOTOS BY STEVE JENNINGS

Swirling organ tones combine with a driving rhythm section, hot guitar licks and the cigarettes-and-whiskey voice of Jakob Dylan to form the back-to-basics sound of The Wallflowers. The band (co-headlining with Counting Crows) were out with A-1 Audio, carrying (per side) 20 JBL 850 cabinets, four EAW long throws, two of the new EAW KF855 downfills and ten EAW 850 subs, all powered by Crest 7001s and 8001s.



At the Yamaha PM4000M is monitor mixer "Hutch" Hutchison, who also handled monitors for the Counting Crows. He says The Wallflowers are a pleasure to work with. "They set up very close onstage," he adds, "and they like it loud, so having all those wedges around them suits them well."



Dylan sings into an Audio-Technica AT-89R mic, fitted with the metal-mesh head from an ATM-63HE, a shape that works better on his voice. On their vocals, Dylan and Michael Ward use Drawmer 1960 preamp/compressors.



Michael Ward's Mesa amp is miked with an Audio-Technica AT-4050.

FOH engineer Tim Durfey has been out with The Wallflowers since the release of their debut almost two years ago. He also happens to be the band's tour manager, production manager and tour accountant. "It's quite challenging to go from laying out monitors and setting up FOH to working all the details as the road manager and doing the accounting at the end of the show," he says. Durfey is using a Yamaha PM4000 console. He says the band isn't using any wireless gear and are keeping things very clean and straightforward, though the musical arrangements differ some from the record.



Dylan and Counting Crows' Adam Duritz duetting on "6th Avenue Heartache."



Rami Jaffee's keyboard setup: piano, B3 and Vox Continental. For a classic analog sound, he's using a variable-speed Echoplex tape delay on the B3 and has started using a Farfisa organ as well.

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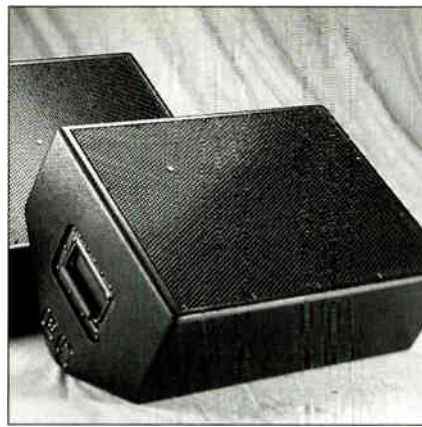


—FROM PAGE 144, NEW PRODUCTS

physical time alignment and a straight-forward cross-over; the F15 contains a TAD TL1601B 15-inch woofer and a TAD 4002 HF driver on a custom EV horn. The smaller F12 contains the same HF driver and horn and a JBL 2206H 12-inch woofer. Both units are bi-amped with Crown 3612 amps with PIP cards providing crossover at 1,200 Hz.

**MIXERS**

Major SR mixing console debuts at AES include the Paragon Monitor from ATI (Columbia, Md.) and the M-type from Cadac (Luton, Bedfordshire, UK), both high-end monitor consoles offering an unprecedented number of mix buses. Midas (Buchanan, Mich.) unveiled its new XL250 monitor mix console, a companion to the mid-priced FOH XL200 console. See "New Large-Scale Monitor Mixers" on page 135 for more complete descriptions. Crest Audio (Paramus, N.J.) also showed its two newest entries, the flagship V12, aimed at the upper segment of the FOH board market, and the X-Series, a new mid-range line of 8- and 4-bus FOH and



Firehouse Productions monitors

monitor boards.

At the other end of the market, the GA Series from Yamaha (Buena Park, Calif.) is targeted at club and installation applications and offers an interesting approach to the FOH monitor functionality dilemma: The first four of the ten aux buses may be individually switched to operate as subgroups for FOH mixing, giving the board multiple identities ranging from a 4-bus, six aux FOH board to a 10-aux-plus-stereo monitor board. Prices start at \$3,000 for the 32-input GA32/12, \$2,500 for the 24-input GA24/12.

**AMPLIFIERS**

New amplifier introductions have never been the same since the multi-colored Crown K2 launch, but there were some interesting new developments. Crest Audio (Paramus, NJ) showed two lines, the Pro II Series and TKS Series, both incorporating Crest's new PowerLok™ technology, enabling the new amps to run consistently on any input AC voltage between 90 and 255 VAC. As a result, both amp lines weigh less and offer more power output than comparable models. The Pro II Series will be available in 1Q '98, at a lower price point than Crest's Pro Series. The TKS Series features integrated signal processing and networking capabilities, a front panel LCD readout and optional signal processing and networking cards. Stewart Electronics (Folsom, Calif.) added a new member to its World Series amplifiers. The World 250, developed at the request of Guitar Center, features a new compact switching power supply approximately the size of an after dinner mint wafer. Price is \$469.

Coverage of new SR products shown at AES will be continued in future issues in our "New Sound Reinforcement Products" Section. ■

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—FROM PAGE 143, LIVE STRIP DOWN

than have them worrying about making a better mix."

#### MONITOR WORLD

Speaking of loud, when monitor mixer Brendan McCabe (who's been with Live since fall '94) first set foot onstage, he encountered cochlea-shriveling levels. "If you really want to know, they were consistently posting stage volumes in excess of 120 dB," he relates with the pride of a true survivor. "There were no monitors in the world that were loud enough for them, it was inhuman. The bassist was blasting out one way, the guitarist another, and then you had Ed [Kowalczyk, lead vocalist] fighting back with his main guitar level, plus I had to get his vocal up over everything. It was a major battle."

Out of necessity, McCabe made the jump to in-ear monitors to win the fight for Kowalczyk. His first system, a Garwood Radio Station, made a valiant effort at solving the problem. "We experimented with in-ear monitors for every member of the band," McCabe recalls. "But ultimately, everyone else wound up still using wedges, and they didn't turn it down. So you still had 123 dB coming out of one side, and 121 out of the other. In turn, all I could do was open up Ed's vocal mic some more to get his voice where he wanted it. But once I did that, it turned against me. When I opened up his mic, everything else would bleed in too."

Further attempts to solve the dilemma brought in a pair of PSM600 UHF wireless in-ear personal monitor systems from Shure—one for Kowalczyk and one for McCabe. Fit into the signal chain in much the same fashion as the Garwood Radio Station had been, the PSM600 systems operate in conjunction with an Aphex Dominator as follows: From the stereo out of McCabe's Yamaha PM4000M console, signals travel to the Dominator left and right. From there, the stereo mix goes to a Shure P6T rack-mounted transmitter, which in turn relays the signals to McCabe's and Kowalczyk's belt-pack receivers. All things considered, McCabe seems to have hit upon something with the PSM600 system. Levels have come down by half, he says, and he is also able to run his EQ flat. The Dominator levels have returned to normal as well, whereas in the previous configuration he found himself continually readjusting the threshold ever up. Stage volume is

down, and, most important, Kowalczyk can hear both his vocals and his guitar.

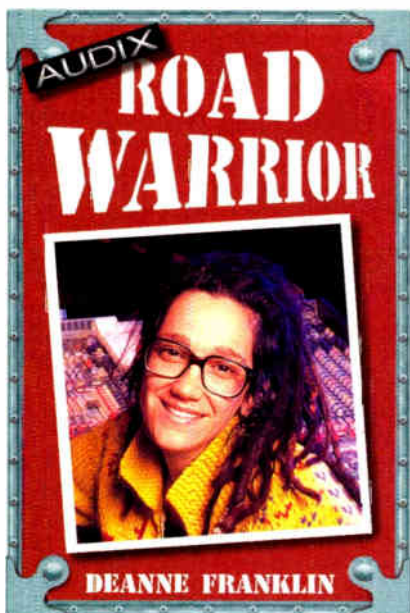
All supporting components for monitors are supplied by Bryan Olson's Firehouse Productions (Hyde Park, N.Y.), including the following pieces: 31-band BSS graphic EQ, BSS DPR-901 dynamic EQ, eight channels of BSS DPR-404 compression and limiting, Drawmer DS201 noise gates, Lexicon PCM 70 digital reverb and Yamaha SPX-990 digital processing.

A total of eight Firehouse 215 wedges sit onstage, as do a pair of Turbosound Flashlight 21-inch drum subs, four Firehouse F15 wedge monitors, and four each of EAW's KF850 and SB850 sidefills. Monitor power is divided into three racks. Housing a pair of Crown 3600VZs and three Crown MA-2400s, a "sidefill" rack is joined by a pair of racks stocking nothing but Crown 36x12s and a "drum rack" containing a single Crown MA-3600VZ and three 36x12s. IQ System control keeps tabs on everything remotely.

A glance at the input list reveals a multifaceted assortment of microphones. Starting at the drum kit, an SM91A from Shure joins a Beyer M-88 to capture low-end kick drum whomps and thumps. A Shure SM57 coupled to a short boom is mounted at snare top, while an SM98A sidles up to the rim, and an AKG C-414 resides at the bottom. Hi-hat is managed by a short-boom-mounted AKG 451, while toms and shakers are SM98As. Overheads are AKG C-414s, and not to be overlooked is an SM81 for ride cymbal. AKG C-414s are also used for Kowalczyk's guitar amps. Guitarist Chad Taylor's vocal position is fitted with a Shure Beta 57A. Kowalczyk's vocals materialize at the console via a Shure wireless UHF system outfitted with an SM58 capsule.

As a long-time FOH guy (he mixed out front for The Replacements—a job he calls "the closest thing to live combat I've ever experienced"—before switching to monitors with Soul Asylum in 1992), McCabe incorporates an FOH style into his monitor work. "The use of effects is important to me in a subtle and judicious sense," he says. "I put them in here and there—a little drum reverb and whatnot—just to fatten it up a bit and take out that 'blatty' sound monitors can get. I develop little corridors of sound onstage for each mix. Everyone gets what they need to hear." ■

*Greg DeTogno is a Chicago-based freelance writer.*



#### GIG: Live sound for Liz Phair, Tom Waits, The Breeders

"I use the OM7, OM5 or OM3 on vocals depending on which act I'm out with... for Natalie Merchant, we used the OM7. I also use the D1 on snare and the D2's on toms. With the D2's, I don't have to add any top end – it's automatically there. They're very full range. I never leave home without my selection of Audix mics, no matter what size the gig."

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—FROM PAGE 142, ...THE ENVELOPE, PLEASE  
the boys and girls.

A typical day starts with a simple one-page document: a stage map on the top half and an input list below. Input locations and AC drops are shown on the plot, monitor mixes are numbered, and distances from the down-stage edge to the wedges and drum riser are clearly indicated, as are the names of the players. The input list notes the types of stands needed, though there aren't many, and any channels that need phantom power, gates or compressors. Brands of consoles, reverbs and limiters don't seem to be too important, as long as there are ten onstage mixes feeding bi-amped monitors with 2-inch drivers. Also included may be a request for a rug on the drum riser and a note that the band's mics and backline can't be shared. In short, this one piece of paper details everything the sound company needs to know to have the stage ready.

Well, on this particular day it's 2 o'clock in the afternoon; I'm working as a systems tech, and the band and crew still haven't shown up. My monitor partner and I have had the P.A. line checked and ready since before lunch and are now involved in minutiae like neatening up the cable runs, while we recount our adventures during the past week when we were on different systems and shows. The promoter informs us that the band will arrive from the hotel in an hour, which seems a little late, but we figure they know what they're doing since they've been at it for many years and, sure enough, a bus pulls up right on time. To our surprise, we are greeted by not just two sound engineers, but six other road veterans who drag in cases, adjust the position of the drum riser and monitors and have the stage ready for sound check in less time than it takes to write this down. As they move into soundcheck mode, the realization dawns that there are no roadies on this tour—the guys that just set up the rigs are about to play them. Less than an hour later, soundcheck is completed and the promoter is explaining that dinner is normally scheduled for five, but they'll try to hurry things up in the kitchen.

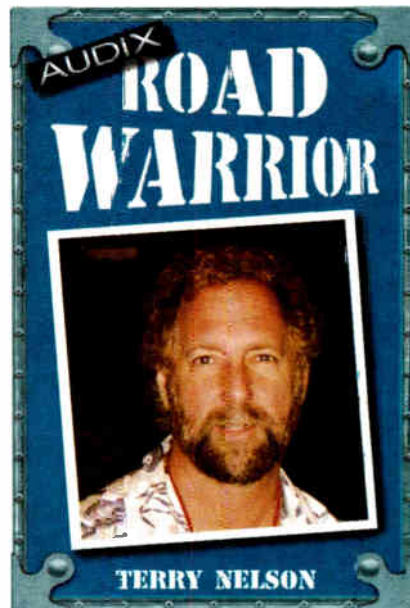
While waiting for dinner, a quick inspection of the bus reveals that it is owned by the artist (his name is scripted below the driver's window). It occurs to me that perhaps this group is a lot more professional than their humble, softspoken demeanor would imply. Just before the show, a kindly white-haired school

teacher asks the FOH engineer how he got his job, and he modestly explains that the artist is his brother and he simply started mixing the band 16 years ago and has done it ever since. This artist encourages his fans to take photos during the show and afterwards goes out of his way to meet and greet fans after a great performance that can only be described as pure country music.

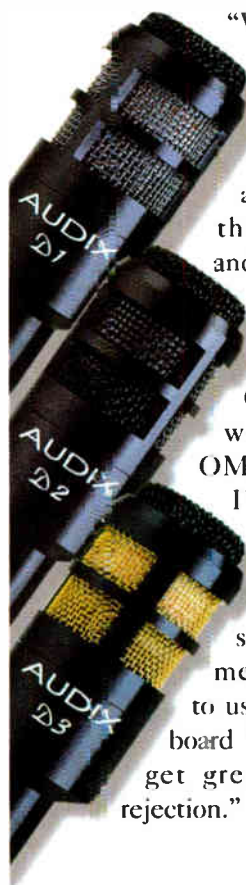
Typical of many casino gigs, a second show has been added that night. While the room empties after the first show, my partner is onstage getting a cable case out. Curious that he would spend the few moments between shows neatening up further, I go onstage and ask him if he's getting things ready for load out a bit early. Through some miscommunication he never heard about the second show and, with a mortified look, he tells me he's already zero'd out the monitor console. I stand by for a minor nuclear reaction while he informs the band's monitor engineer of the mishap, only to watch in surprise as he simply fetches the band from the bus and quickly runs through a second check of the monitors. My partner is naturally beside himself through all this, apologizing profusely. "Ah shucks, that's nothing. Don't worry about it," is the band's unanimous response. "You should see some of the stuff that happens to us." After ten minutes everything's back in order in the wedges and the band goes on to perform an even better second set. My hat is off to road-manager-cum-monitor-engineer Woody Wood, FOH engineer Tim Anderson and the entire band that plays for John Anderson. It's no surprise that this was their second trip to this venue in two years. I hope everyone who works festivals or one-offs as a system tech has the pleasure of working with them next year.

#### AND FINALLY...

My nomination for sound company. I count myself lucky to have had the opportunity not only to work with a wide variety of regional sound companies as an artist's engineer doing one-offs, but to have also had the distinct pleasure to work directly for some of the finest sound companies, first in New England and now here in the Northwest. I owe a debt of gratitude to each one of you and wish you all well in the coming year. Though many regional companies can't wait to put in a bid for a tour, the firm I would like to name is essentially a one-man operation run out of Eugene, Ore., by George Relles. He has



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## LIVE SOUND

spent the 20 years since he left college building up an inventory of the finest equipment—on which he owes no debt, including his truck. This allows him the luxury of turning down work he knows isn't right for him and paying his employees even when the show is canceled. I am happy to work for him for the same reason I gladly toil for this magazine—a genuine interest in quality music of all types and a dedication to high-quality production.

I hate long speeches almost as much

as magazine articles in which the author describes their own work or shows, but now that I've gotten this off my chest, I'd like to take one more breath to congratulate those of you who put that extra effort into making this business of professional audio more than just a job. Whenever you're lucky enough to get great service from a manufacturer, sound company or live engineer, take a moment to give something that costs so little but means a lot: a simple "thank you"...and repeat business! That is the best award that you, the readers, can give. ■

## NEWSFLASHES

The Rolling Stones tour is using two Cadac 44-way M-Type monitor consoles—the manufacturer's first monitor boards. The monitor mixer is Chris Wade-Evans...Veruca Salt is on the road supporting their latest release, *Eight Arms to Hold You*. Audio-Technica reports that front-of-house engineer Russell Fischer is using AT4050s on lead guitarist Louise Post's Bogner amp, an ATM25 on the Orange amp for Nina Gordon's rhythm guitar, and ATM23HE, AT4041, ATM87R, ATM25, AT4041 and AT4033 mics on Stacy Jones' drums...The Sydney Town Hall (Australia) took delivery of a DDA QII VCA console...Summit Audio reports that its processing gear is being used on current tours by Phil Collins, John Mellencamp and Counting Crows...L.A.'s Museum of Tolerance received a new sound system, installed by Max & Associates. Included in the system are BGW 350A, 750G, and self-powered M1100 subwoofer systems...Audio Analysts was out on tour this fall with Wynonna, Sammy Hagggar, INXS and Status Quo...Colorado Concert Sound (Boulder, CO) added a fifth 48-channel Midas XL200 console to its inventory...XTA Electronics reports that the Broadway production of *Titanic* at the Lunt Fontanne Theater is using three of its GQ600 processors, and the Plymouth Theater's *Jekyll & Hyde* employs nine DP200 graphic EQs. The gear was provided by Masque Sound of Moonachie, NJ...Another Broadway production, *Defending the Caveman*, is using a Beyerdynamic UHF U600 Series wireless mic system...The new sound system for the Gateway International Raceway was provided by Laser Light and Sound of Raymore, MO. The entire project was wired with

Clark Wire & Cable...Richter Scale Productions (Denver) and Burns Audio (L.A.) provided more than \$1,000,000 worth of gear for Denver's Summit of the Eight meeting of world leaders, which took place in July. The event included a concert at the Western Events Center, a venue otherwise mainly used for livestock shows. The system comprised all Apogee speakers: eight 3x3s per side for proscenium clusters, four downfill AE-5s and four AE-12 subwoofers per side; three AE-5s formed a center cluster, with the centerspeaker focused directly at President Clinton. Five more AE-5s were used for downfill from the front truss, and four AE-2s were used for front fill. Left and right stereo clusters were made up of three 3x3s and three AE-5s each. The concert featured performances by Lyle Lovett, Chuck Berry, Kool & The Gang and Amy Grant...Gear provided by A-1 Audio for Aerosmith's current tour includes 12 Klark-Teknik DN8000 loudspeaker processors and DN3600 digitally controlled programmable analog graphics. Aerosmith's system was designed by Laurie Quigley. See last month's "All Access" for more about Aerosmith's tour...This past summer's Tibetan Freedom Concert at Randall's Island, NYC, included performances by U2, Foo Fighters, Alanis Morissette, Radiohead and Sonic Youth. The show was mixed live and recorded by Effanel Music on an AMS Neve Capricorn console...Two UK clubs, The Zodiac (Oxford) and The Boardwalk (Manchester) purchased Spirit by Soundcraft's Spirit 8 consoles...The V-DOSC speaker system for Dr. John's appearance at the Eighth Annual Crawfish Festival at Waterloo Village, Stanhope, NJ, was supplied by Klondike Sound of Greenfield, MA. ■



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CIRCLE #114 ON PRODUCT INFO CARD

# NEW SOUND REINFORCEMENT PRODUCTS



## BSS OPAL DYNAMICS PROCESSORS

BSS Audio (Nashville, TN) introduces new Opal Series dynamics processors with the DPR-422 Dual Compressor/De-Esser and the DPR-522 Dual Noise Gate. Both single-rack-space units feature electronically balanced inputs/outputs, balanced sidechain inserts and switchable +4dBu/-10dBV I/O levels. The 2-channel/stereo DPR-422 Dual Compressor/De-Esser (\$899) provides both broadband and HF-specific de-essing. LEDs indicate gain reduction and input/output levels. The DPR-522 Dual Gate (\$799) offers two channels of gating (stereo linkable) with a parametric filter in each sidechain. Check Key controls open the gates for line checking; a Key Listen mode allows monitoring the sidechain filtering. LEDs indicate gate action and input levels.

Circle 314 on Product Info Card

## FURMAN C-132 COMPRESSOR

The C-132 comp/limiter/de-esser from Furman (Petaluma, CA) is a one-rack-space unit offering variable control of compression ratios (2:1 to 50:1), attack and release times. A 10-segment LED shows gain reduction, and LEDs also indicate above- and below-threshold signal levels. A de-essing function is provided, and sidechain access to the compressor allows for de-ess refinement or broadband ducking. A low-level input accepts electronic instrument signals, and two C-132s can be linked for stereo. Price is \$303.

Circle 315 on Product Info Card

## DRUMMER'S HELPERS SOUND SHIELDS

Drummer's Helpers (Nanuet, NY) offers acrylic sound shields for controlling drum leakage in stage and studio setups. Available in 24x48-inch and 24x60-inch panel sizes, the sheets feature connect/disconnect brackets; and carrying cases are available. A set of four 24x48-inch panels is \$225.

Circle 316 on Product Info Card

## ALLEN & HEATH GL3300 MIXER

Allen & Heath (Sandy, UT) introduces the GL3300 mixer in 16-, 24-, 32- and 40-channel frames. Offering eight aux buses, four mute groups and an output matrix, the board is also usable as a monitor mixer—subgroup switches reconfigure aux sends as main outs, and the mono out drives the cue wedge. Inputs have XLR ins, TRS inserts and direct outs, 4-band EQ (two sweep mids) and 100mm faders with LED metering. Features include two stereo FX returns, optional VU meter bridge and 8-channel expander sections. Stereo inputs are available, and the GL3300 can be linked to other GL Series consoles via an optional 8-group D-sub connector or A&H's SYS-LINK™. Prices range

from \$3,995 to \$7,995 (40-input).

Circle 317 on Product Info Card

## CABLETEK RACKMOUNT DI

Cabletek Electronics (Port Coquitlam, BC) offers the Radial JD-4 rackmount 4-channel DI box, a passive design using Jensen transformers and Mogami cable. Front panel controls include individual 15dB pad, pickup/line, polarity reverse and ground lift switches (recessed in a U-channel). A Merge switch links input and thru jacks for summing stereo keyboard and guitar signals to mono. Rear panel outputs are XLR, with duplicate TRS input and thru connectors.

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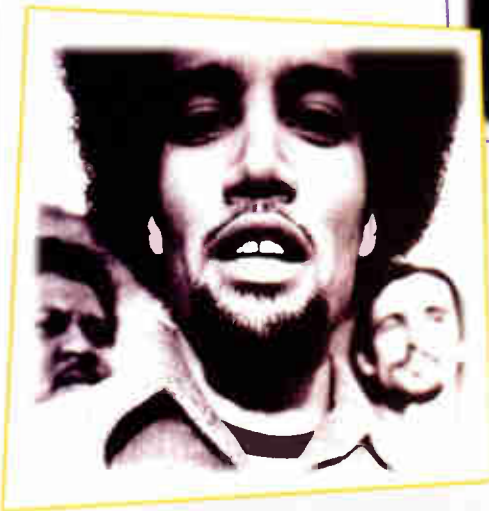
RECORDING NOTES

**BEN HARPER**

**STUDIO  
EXPERIMENTATION**

by David John Farinella

After completing sessions for Ben Harper's new album, *The Will to Live*, engineer Todd Burke was surprised to discover that there was more recording equipment to carry out than had been brought in. "Loading out the studio was amazing, because more and more gear kept coming out," Burke says with a laugh. "I think we spent six weeks in there, and by the end of it, there was stuff everywhere. I was buying stuff. J.P. [Plunier, producer/manager] was buying stuff, it was ridiculous." In the drum department alone they accumulated four kits,



an assortment of snares and an Akai MPC-60, which he's not sure they even ended up using on the album.

Their collection was born mostly from the pawn shops of Los Angeles, and while the options were a bit overwhelming, they were never a distraction, Burke says. "When we would approach each song, there were rough demos of things, and I'd heard some things in rehearsal before we started,



PHOTO: ANNAUSA

but really it was just free-form going at it. We just let things progress naturally. That's how Ben works, that's the atmosphere that happens around him. It turns into a very spontaneous kind of magic. I'm so happy when they come into

town and I get to work with them."

The assorted kits that Dean Butterworth (drummer for Harper's band, the Innocent Criminals) used during the sessions at Grandmaster Recorders in Hollywood formed just the base of the instrument collection. Somewhere in the studio, Juan Nelson stashed his SWR Grand Prix preamp, Crown Macro-Tech 1204 power amp and SWR Goliath II 4x10 and SWR Goliath II 15-inch cabi-

nets: percussionist Rock Deadrick (who played on Harper's first album, *Welcome to the Cruel World*, and guested on three tracks of this album) stashed a few things here and there; and Harper stored his arsenal of 30 guitars, including his signature Weissenborn lap steels, Weissenborn Konas and an assortment of Martin and Gibson acoustic models. Then there's the saz, a Middle Eastern stringed instrument Harper picked up in Turkey during a tour to support his second album, *Fight for Your Mind*.

That record exposed the singer/songwriter to a much wider audience than did his first album. Not only did he travel into the Middle East on the supporting tour, he touched down in Australia,

—CONTINUED ON PAGE 160

# EBN

## TELECOMMUNICATION MANIPULATION

by Bryan Reesman

We live in a technological society, where mass media not only reports on events but also helps dictate our interests and ideologies. To some, this might seem obvious, but in a television culture that distracts through titillation and masks reality, many people get lost in the video onslaught. With such over-stimulation, channel surfing these days has become common practice, which itself creates many interesting audio-visual non sequiturs. It also spoon-feeds a wide range of images that repeatedly affect us.

Emergency Broadcast Network (EBN) are completely aware of all this, as their

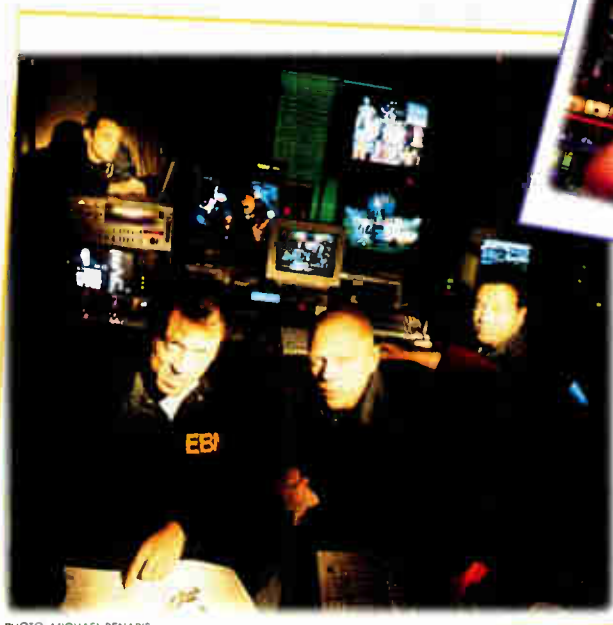


PHOTO: MICHAEL BENABIE

TVT Records debut, *Telecommunication Breakdown*, attests. Combining elements of electronic music, hip hop and breakbeats with interwoven television sound

bites, they have concocted a recipe for dissonance that not only reveals the absurdities behind our commercial pop culture, but also the sinister manipulation that (as the first song, "Elec-

tronic Behavior Control System," explains) TV and other media use to influence thought and behavior patterns.

The opening track offers a collage of various television snippets that humorously comments on how we misguidedly think we're controlling our viewing while really letting TV control our lives. EBN's debut also features many confrontational songs. "Get Down Ver. 2.2" and "Shoot the Mac-10" are both aggravated hip hop, the former dealing with antago-

—CONTINUED ON PAGE 164



# SONIC JOYRIDE

## RIDING THE BUS TO SUCCESS

by Robyn Flans

Quirky rock trio Sonic Joyride wanted to make a record, take it to the streets and make an impact. They've managed all three through incredibly hard work and the brilliant marketing tool of their touring vehicle—a retired school bus complete with platform for performances, a full sound system

(in their sleeping quarters) and a 16-track recording studio. They've avoided lots of police on their park-and-play promotional tour across the country for their album *Bazaar* (Anomaly Records), and they've seen a good number of the country's historical and natural landmarks—including the Bunker Hill Monument in Boston and the Grand Canyon. They've also encountered some of the country's funniest oddities, such as the world's largest bottle of ketchup, in Collinsville, Ill.,



PHOTOS: SANDY PARDEE

Sonic Joyride atop the cosmic sled at the Rock and Roll Hall of Fame: (L to R) Rick Reese, Ken Tondre and Chris Hobler.

### Playing at the Rock and Roll Hall of Fame



World Radio History

and the world's biggest ball of twine, in Cawker City, Kan., where they were also given the key to the city.

The New Hampshire-based band has succeeded in attracting a lot of attention, but they are aware that once the gimmick of the bus wears off, they must deliver the goods. Toward that end,

they recruited New England engineer Dave Luke, who brought along such gear as a Mackie 1604 VLZ console, MPX 4A 4-channel Sytech mic pre's, Symetrix outboard gear, Celestion stage monitors, a Stewart P.A. system, Yamaha EQ and a variety of microphones, including

—CONTINUED ON PAGE 167

# GENE CHANDLER'S "DUKE OF EARL"

by Blair Jackson

"Duke, Duke, Duke, Duke of Earl, Duke, Duke..." It's one of the most famous openings of any song from the rock 'n' roll era. And from its chart debut in mid-January 1962 all the way through the summer of that year, the song was inescapable. Not that there were any complaints—is there anyone who was not charmed by its graceful doo-wop pace, by the *basso profundo* opening and lead singer Gene Chandler's tenor soaring into those unearthly falsetto "oo-oo-oo's" near the end?

Actually, by 1962 the Golden Era of doo-wop had already passed, so the success of "Duke of Earl" was something of a surprise: even then it felt a bit like a throwback to the late '50s.

Although the song was written and performed by the 21-year-old, Chicago-based Chandler, when the Vee-Jay Records 45 was originally released, it was credited simply to the Duke of Earl, and there *was* an air of mystery surrounding this odd character. Where was Earl, his "dukedom"? Who was this cat? Indeed, when Chandler would appear on TV and onstage to sing the song, he'd often wear a top hat and tuxedo to make him look like he might be a real duke. In one publicity photo, he even wore a monocle!

Chandler was born Eugene Dixon in 1940 on Chicago's South Side, where he grew up singing doo-wop on street corners with his friends and listening to the R&B and blues that saturated the area. At 17 he joined the Army, and upon his discharge in 1960, he joined an already-established Chicago R&B group called The Dukays, who scored with a minor hit on Nat Records called "The Girl Is a Devil" in 1961. It was A&R man Carl Davis, discoverer of The Dukays, who suggested changing Dixon's name to Gene Chandler, after the popular actor Jeff Chandler. "Duke of Earl" was Chandler's solo debut, though he was backed on the track by The Dukays.

"Duke of Earl" was cut at Chicago's Universal Recording Studios, with Davis producing an arrangement by Riley Hampton, and a young staff engineer named Bruce Swedien handling the technical end of the session. (TEC



PHOTO: MICHAEL OCHS ARCHIVES

Awards Hall of Fame member Swedien also engineered last month's Classic Track, Michael Jackson's "Billie Jean," nearly two decades after "Duke of Earl.") "Studio A was a great-sounding room," Swedien recalls. "It was designed and built by my mentor, Bill Putnam. Bill's the guy who brought me from my home in Minneapolis to work in Chicago, and actually, the studio wasn't finished until a year after I got there, so I ended up working for RCA for a year, where I recorded the Chicago Symphony and a number of other things for them. But Studio A is one of the legendary big rooms of that era.

"It had one of the consoles that Bill built, with 12 inputs and rotary faders. That console was one of the first to have echo send and echo return. Bill Putnam was also the man that invented the system of using artificial reverberation for artistic effect." Additionally, Studio A had two echo chambers.

Swedien doesn't remember many specifics about the session that produced "Duke of Earl," except that he used a Neumann U47 to cut Chandler's lead vocal. "It was just another session," Swedien notes. "At that point, in a three-hour session you'd wind up with four songs if things were going well. Mixing was not a part of it. Everything was live, of course, and I think I did that one direct to 2-track and mono. When we did that record, it was still a time in the industry when there was

very little effort to achieve separation. The object of recording was to present to the listener a sort of unaltered acoustic event—a performance. That was also just before the record industry was interested in stereo, and the moguls of the industry didn't think there was any future in stereo. The director of engineering for RCA Victor came out with this great statement: 'There's no future in stereo. I wouldn't take a shower with two shower-heads, would I? That was his analogy.'" Swedien says with a laugh.

Swedien has fond memories of working with Chandler on this and other occasions. "He was a big, tall fellow, a wonderful singer, very easy to work with," he says. Though he is still best known as the singer of "Duke of Earl," which hit Number One on the charts in the winter of 1962, Chandler was no one-hit wonder. He managed to land songs on the R&B and pop charts all through the '60s, '70s and the first half of the '80s. His most popular R&B numbers included "Rainbow" (1963), "Man's Temptation" ('63), "Just Be True" ('64), "What Now" ('65), "Nothing Can Stop Me" ('65), "I Fooled You This Time" ('66), "Groovy Situation" ('70), "You're a Lady" ('71, with Jerry Butler) and "Get Down" ('78). Chandler still lives in the Chicago area and performs occasionally. This should not be surprising—after all, "nothin' can stop the Duke of Ear-r-r-l." ■

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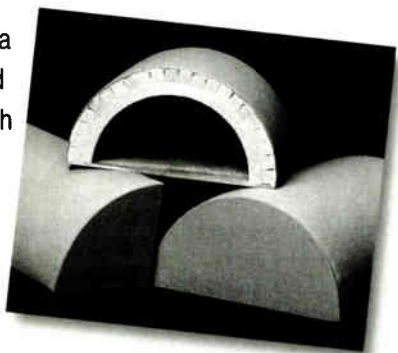
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CIRCLE #117 ON PRODUCT INFO CARD

—FROM PAGE 156, BEN HARPER

New Zealand, Europe and spun through the United States. But before he ever traveled outside of his Inland Empire home near Los Angeles, Harper had made his mark on the L.A. music scene, performing stunning, blues-laced folk songs. One of the many who caught Harper's energy early on was blues legend Taj Mahal, who invited him to join his band. Harper played with Taj Mahal until 1993, when he recorded his major-label debut. From then till now, Harper's been on a breakneck roller-coaster of touring and recording.

It was toward the end of October last year that Harper and the Innocent Criminals (which included Nelson, Butter-

**It's such an amazingly  
dry record,  
and it stayed that way  
through the mix.  
Really, room mics  
are the only ambience  
things on there.**

—Todd Burke

worth and then-percussionist Leon Lewis Mobley) completed the 18-month tour to support *Fight for Your Mind*. Throughout the world tour, Harper was writing the songs that would make up *The Will to Live*. After a week or so of rest at the end of the tour, he and Plunier got together and fleshed out his ideas into full-fledged songs. Then, in early December, they entered Grandmaster Studios, where the same team had cut *Fight for Your Mind*, to begin recording.

While they knew what to expect from Grandmaster's three rooms and the Neve 8028 board, Plunier wanted to make sure that the new record was more than just a sonic continuation of its predecessor, especially regarding the drum tones. During the recording of the 1995 release, drummer Oliver Charles tracked his parts in the large, reverberant warehouse space in the back of the studio, which gave the traps a distinctive, big sound on the record. Plunier says, "I didn't want to go back to that sound, so with every tune we recorded the drum set differently, with different

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drum sets and different snare drums."

This approach was taken to the extreme on the nearly all-acoustic "I Want to Be Ready." The goal was to get a different drum tone every few bars, so during the sessions, after Butterworth completed his tracks for other songs on different kits, Plunier would have him also play the groove from "I Want to Be Ready." "What I wanted to do was keep the same beat but have the sound change," Plunier explains. "So on every tune we recorded, I would have the bpm clicker out, and I would have Dean play the exact same beat. Once that was done, we had all of these loose ends,

and we made one reel of that stuff. Then we took what I thought were the best moments and linked them up. Then we went back and physically spliced ten seconds or so of each beat. Instead of getting a sampled sound, you're actually getting the drum sound off the tape, but it changes every few seconds."

Though Burke and Plunier had Pro Tools at their disposal for the edits, they used it very sparingly. "We were sitting in front of this old Neve desk with all these old great tube compressors and analog machines—I couldn't really justify using the digital realm with the drums for one song," Burke says. "So, I

just chopped it together. It took a second, but it was worth it."

To be sure, Grandmaster boasts an impressive array of vintage tube compressor/limiters, as well as EQs and microphones. For the Harper project, Burke turned mainly to the mic pre's built into the Neve board, as well as a pair of Fairchild 670s, Altec's A322C, LA-2As and Neve 2254 limiter/compressors. Microphones he relied on included the Neumann family of M50s, U67s, M49s and U87s. For the drum kits, he used the standard Neumann 47 FET, Sennheiser 421s and Shure SM57s. To record the strings that appear on the tune "Roses From My Friends," he used M49s, U87s and KM84s, and for the saz he used an M50 in a close-mic situation. Although Grandmaster also boasts a healthy selection of effects processors and reverbs, Burke says they didn't rely on them much. "It's such an amazingly dry record, and it stayed that way through the mix," he explains. "Really, room mics are the only ambience things on there. I can't think of a reverb that's on the record. Of course, that's what Grandmaster is all about—having a lot of really cool rooms."

Though much of the recording on the project was relatively straightforward, Harper, Burke and Plunier didn't shy away from experimenting in the studio. This ranged from the numerous effects employed on Harper's Weissenborns to bolder forays into sonic weirdness: On "Roses From My Friends," for example, Burke flipped the tape on Grandmaster's Studer A827 during the recording of the song's intro, and Harper laid down a number of "backward" Weissenborn lap steel parts. "It might be eight, might be 12, might be three, might be 50," jokes Plunier. Not content to use the technique just once, the backward Weissenborn parts recur later in the song, as does a backward Rhodes and some backward vocal tracks. "Ben got really experimental with that one," Burke recalls. "He kind of got into this Led Zeppelin, '70s rock thing for this record."

The album also contains the first-ever recording of Harper playing a Fender Telecaster, on the song "Glory and Consequences." "J.P. [Plunier] had the Tele in the studio the whole session, because he likes to play it after we're done recording or on breaks," Harper remembers. "We had done a 12-string track on the left speaker and another part on the right-center, and the bass and drums and vocals were all done. I thought that was it. J.P. said,

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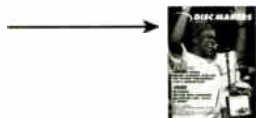


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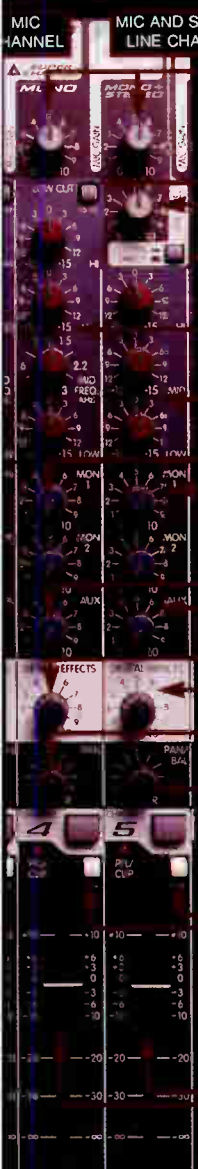
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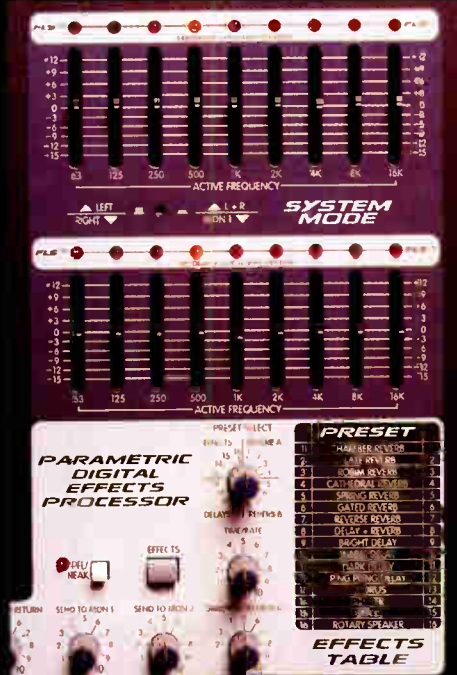
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'Would you try some electric on this?' I really didn't feel comfortable with it at all at first, but he talked me into it. So, they rolled tape, and then I played. When they started the tape, I couldn't find anything to do, then the chorus kicked in and I hit a chord, then another chord and that was it. That was the only place I heard any electric guitar—in the verses, and not the choruses.

"Then the last verse came in and I was like, 'All right, that was cool.' But J.P. was in the headphones saying, 'Take a solo, man. Take a solo.' So, I just peeled one off, and the solo that is on there is one take. I put the guitar down and said, 'That's it. I'm not thinking about that again.' When I walked into the control room, Juan looked at me and said, 'Boy, if you practiced, you could be a player.' I don't even want to think about that. It felt good to do it, but it's not something I'm going to do live. It's not something I'm going to do a lot in the studio, probably."

Harper's electric solo was not the only "first" in the studio during these sessions. In order to give a couple of songs extra punch, they looked for an additional guitar player and selected Bob Marley's longtime guitarist, Alan Anderson; it seemed like a natural choice, given that Harper has drawn so much inspiration from Marley. So while Harper was going electric for the first time, Andersen picked up an acoustic guitar for the first time in 25 years. "He was amazing," Plunier says. "He's probably the only guy I've ever worked with who got better on every take. He is such a master of his instrument that he always knew exactly where he was going." Anderson's touches can be heard throughout "Jah Work" and on the nylon string guitar during the hit song "Faded."

Throughout the making of the album, the emphasis was on having fun and making sure that whatever happened in the studio was ultimately in service of Harper's excellent songs. Chances were taken and rules were broken, but most of the touches the recording team finally used were subtle, and most listeners will never even notice. Plunier likes it that way: "People don't catch a lot of it, and you know, they're not meant to. When you see a good figure skater, you're not saying, 'Oh my God, that looks really hard.' You're like, 'Wow, that's beautiful.' That's the intent of it—you want to make it like figure skating; it looks easy and seems beautiful. If you thought it was difficult every time you heard the album, that would be a pain." ■

—FROM PAGE 157, EBN

nistic police and the latter exploring the male phallic obsession with guns. But the album's standout track may be the instrumental "Super Zen State (Power Chant No. 3)," which comes across as a sort of ethno-trance-hip hop. The enhanced CD even has a CD-ROM portion with videos for "Electronic Behavior Control System," "3:7:8" and "Homicidal Schizophrenic (A Lad Insane)."

Things are only starting to heat up for EBN. From their studio in Providence, R.I., EBN members Josh Pearson and Greg Deocampo (who also work with Gardner Post and Ron O'Donnell) shed some light onto their creative

**We've been  
searching for signs  
of intelligent life  
on Earth  
by capturing and  
processing these signals  
that our TV receivers  
are picking up.**

—Josh Pearson

audio manipulation techniques, as well as their new video/audio album and video sampler.

First, a brief history: EBN formed out of Pearson Post Industries, which Pearson and Post founded to do work in the fine art world, creating multimedia installations in art galleries, universities and the like. They gradually became more interested in mass and pop culture. In fact, the inspiration for Emergency Broadcast Network came from experiments where Pearson and friends would flip through TV channels while listening to music. This random flipping to the beat sowed the seeds for the group. "Cable TV was the inspiration," notes Pearson.

EBN formed in 1991 during the Gulf War, and their early material, which deals with that period of history, was first performed live in 1992. Around 1993, Deocampo came on board as their digitizer and, according to Pearson, "basically got us into the digital domain." Or, as Deocampo jokes, "EBN 2.0."

"Obviously the main focus of our re-

search for the past several years has been the TV broadcast media environment," explains Pearson. "And having seen the movie *Contact* recently, Greg and I were talking about how in our project, we've been searching for signs of intelligent life *on Earth* by capturing and processing these signals that our TV receivers are picking up.

"One of our tasks in creating EBN material is realizing that this TV culture is very ephemeral, and the actual material itself goes in one eye and out the other," he continues. "It's just so much video garbage that just gets thrown out. And we see ourselves as trying to capture certain moments and preserve them for posterity, if nothing else. Ironically, we put the stuff back on the very same disposable media that it's created with."

It's intriguing to see how EBN have developed from their early days with very basic production techniques to the sophisticated gear and ideas they employ now. "We've traveled a long journey in our production techniques, from hardcore analog to digital," Pearson says. They began working with two VHS decks before graduating to a "very crude ¾-inch editing system with straight cuts, and then a DigiTech Sample Pedal and a drum machine." They worked their way up to a Roland W-30 sampler/sequencer, with 15 to 30 seconds of sample time via an onboard 16-track sequencer.

"Working with that, we did this very crude 2-track technique," recalls Pearson, "where we would fill up the sampler with all the beats and musical parts, play it out, make a sequence, play that onto the left channel of the ¾-inch tape, rewind that tape, create another sequence, fill up the sampler again with a whole other set of sound bite samples, sequence that along to the original music track, and then dub that sequence onto the right channel of the ¾-inch tape. Using our hands, no less. The good thing is that all you had to do was hit the Start button once.

"So that was our mainstay production technique for the first bunch of material that we started performing live in nightclubs. Then we signed with TVT, and they helped us out, got us some gear. Most of this material [on *Telecommunication Breakdown*] was made using that production technique, which was a lot better but still kind of half-assed, where we were basically sampling from breakbeat records, assembling a lot of musical samples from music sources, then separately sampling a bunch of sound bites from our videotape library."

*Breakdown* was recorded with Jack Dangers from Meat Beat Manifesto. Dangers came to EBN's home studio, and for three weeks they did pre-production with the Roland S-770 sampler and a 16-channel Mackie board. "We were using both my W-30 sequencer, and at the time, Jack preferred the Atari 1030ST—that was his sequencer [platform] of choice, just because he was so familiar with it. We then took the Atari, the W-30 and the 770 into Normandy Sound in Warren, Rhode Island, this totally awesome studio—a 48-track, an SSL console and huge racks of effects. So we did a 48-track recording of all the songs on the album."

While Normandy Sound proved to be a musician's dream for recording, Pearson confesses, "It actually ended up being a bit of a nightmare. Some people would say, 'You shouldn't do 48-track, because if you want people to do remixes, they're going to hate you—people really just want to deal with 24-track.' Part of it was because we had never done this stuff before. We spread out all the samples on as many different tracks as we could, and Jack also really likes to get into effects and tweaking effects. So he was running a lot of effects back into channels on the board."

This resulted in a sonically impressive tapestry but also a very complex recording situation. "Basically, the outcome of that whole elephantine production process has made me now, three years later, want to do nothing in a recording studio," Pearson says. "I am more or less determined for the next product to be totally recorded inside of a computer and staying in the digital domain; no more going out to a board of any kind."

After a year-and-half sabbatical following their last tour, EBN have begun work on a new double-album. One CD will include original music in CD-ROM format, as the music is being created from videotapes, and a second disc will be a remix CD done by various producers, remixers and DJs, or, as Pearson says, a "remix/compilation/tribute/soundtrack CD." There will also be a number of video-only compositions.

"The bottom line for our new production technique is that all the sounds you hear are represented by video that you see," Pearson notes. "Whereas with that first CD, there is just a lot of general music sampling that you hear. The music is being created as the video is being created."

For this still-untitled endeavor, the video-only compositions are being en-

tirely edited and mixed inside Pearson's Macintosh using Macromedia Deck 2 for hard disk recording and multitrack mixing, Adobe Premiere for video editing, Adobe Aftereffects for video special effects, Waves audio software, and a Media 100-LE video card for capturing images and for playback. "So far, I've only got my hands on Cybersound FX for doing basic EQ'ing and effects," Pearson says. "Once we create this core body of video music, we then would like to put that stuff on a CD as is." Subsequently, the material will be sent out for remixes.

One demo from the new album sam-

ples a very unusual set of information: a TV minister discussing pain, pleasure and nirvana; a drummer from an instructional tape; the leader of the Heaven's Gate cult talking about evacuating the Earth; and an upright bassist and a trombone player from *The Lawrence Welk Show*. Pearson remarks, "Lawrence Welk is a great source for sound and visuals. Nobody else would wear a bright orange jacket against a bright blue background." The elements were edited together in rhythmic patterns to play off of each other as something akin to a techno mix, the spoken word fragments colliding with instrumental excerpts in clas-

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sic EBN style. "Everything's being assembled in these little one-bar chunks," Pearson says. "The visual representation of a drummer [from the instructional tape] doing a jungle beat just cracks people up," Pearson says. "People really enjoy seeing it because they're sped up to twice their speed."

Another demo involves a newscaster from Headline News (the logo transformed into EBN News), whose words at the start are chopped up to say: "The CIA is ordering the White House to conduct broadcast TV radiation LSD experiments on Americans to attract the attention of a younger audience." Then

other words are sampled and repeated rhythmically over a pulse-racing drum and bass sequence.

Video sampling has obviously helped create the unique identity for this multimedia endeavor. But now EBN want to take their technological savvy and market it in the form of a video sampler, allowing other artists to do what they do. The sampler is the first venture of an EBN-run company called ETC, whose mission is "real-time interactive audio-visual computing communications." ETC formed out of AVX, a research and development operation formed in 1994 by Deocampo and a financial partner.

"In a nutshell, the video sampler will do everything that an audio sampler does, except with broadcast-quality video," says Pearson. "We have built a prototype that runs on a Macintosh computer, but it's a very limited prototype that's been frozen in place for about two or three years now. We actually made a decision recently to go for the musical instrument market instead of the desktop computer user market.

"One thing that's obvious in our marketing research is how all big rock concerts now use video of some kind. U2, the Rolling Stones, R.E.M.—almost everyone uses video or visuals of some kind. And there are problems with playback. What do you use for playback? People use a variety of stuff now—laserdiscs, videotape, film. We just want to provide this video sampler as a unit that we think could provide a really sturdy, robust playback system for video that also offers this whole other world of advantages to it, including total spontaneity as far as the video mix and absolutely on-the-beat linking with any kind of MIDI sequence that the band might be using. Totally MIDI-controlled, instantaneous playback: no delay. Even with laserdiscs, there's a substantial delay. U2, for instance, used ten synchronized laserdisc players on their Zoo TV Tour. They were all actually being controlled by [Opcode] Vision [software], which was running on a rackmounted Macintosh, and if that crashed, they were kind of screwed for a while."

EBN have worked on and off with U2 over the years, first producing material for the American and European Zoo TV tours. The band opened their U.S. shows with EBN's "We Will Rock You" video, where a George Bush speech is edited to say, "We will rock you" over Queen's song of the same name. After Zoo TV, EBN collaborated with U2 on a video remix for their "Numb" single from *Zooropa*.

"We took the song and added a whole layer of audio and video tracks that they released on a short-form VHS tape," Pearson says. "And then recently we did three two-minute segments for a short-lived pilot for a TV show that was going to be called Zoo TV. It was going to be a late-night MTV thing, Sunday nights at 1 or something. They showed each one of the three pilots once, and I think that was it. I didn't expect this show to survive, really. It was a half-hour show that was pretty artsy and intellectual."

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of other people's material for their albums and videos naturally brings up an interesting legal issue, but, Pearson says slyly, "That's actually not our department. We're just the Arts and Entertainment division. You have to talk to our Legal Department about that. We're just doing what the people at the top tell us to do." Spoken like a true insurgent. ■

—FROM PAGE 157, SONIC JOYRIDE

his current favorite, the new Oktava.

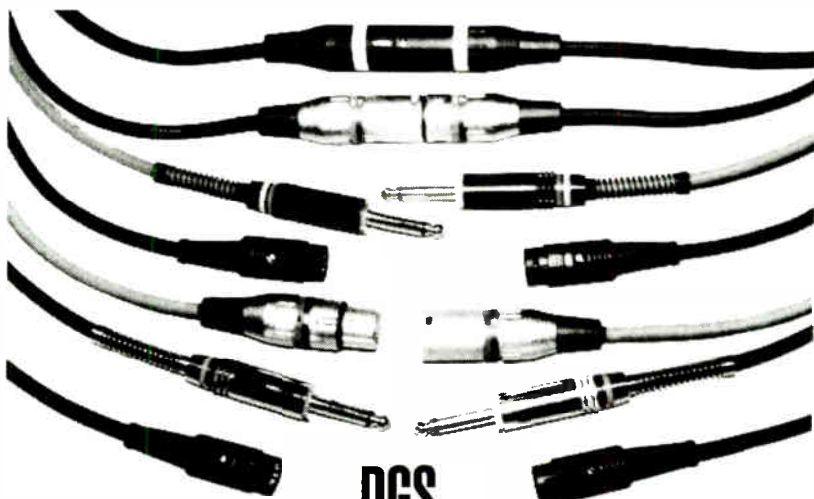
The bus rooftop supports a welded 8x16-foot box that opens to reveal the performance platform with much of the equipment wired for quick setup. Still, the project was not without an abundance of obstacles. "We set everything up before hard-wiring it," explains bassist Rick Reese. "The first thing we noticed was that the stage was not structurally sound. The cymbal stands were flipping over, so we had to have a welder install some more braces. Then we reinforced the stage with another layer of wood and some weatherproofing and some stabilizers in the back."

"The five-minute setup was one of our obstacles, because the whole bus is totally hard-wired," adds guitarist/lead vocalist Chris Hobler. "People have called us along the way and said, 'Come play our club,' but the answer is, 'It'll take us half a day of unwiring and rewiring, so on this tour, where we're doing four concerts a day, we can't take the stuff off the bus.'" Some of the gigs at historic spots were pre-arranged, but many are guerrilla affairs that last as long as it takes for the local constabulary to roust them.

The sound, meanwhile, is impeccable. "I have an unusual guitar rig," Hobler says. "It's all MIDI-controlled, and I do a lot of crazy stereo stuff. One thing we're anal about is minimal overdubs, which is why I run the stereo guitar thing as a mimic at some points, and Rick does all the keyboard parts with his feet while we're playing. The only thing on the record we're not doing on the bus top are some of the vocal harmonies, which is why Dave splits the vocals."

"I split Chris' vocals three ways so I can have three channels of vocals to process and pan differently," explains Luke. "I took a couple of microphone cords and cut them up and spliced them together and took three channels and panned left and right and dead center, then processed and EQ'd them all differ-

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PHOTO: DAVID AMATO

**Chris Hobler and Dave Luke**

ently, because Chris is the only singer and I wanted more textures and choices out of his vocal. With the exception of maybe Whitney Houston, people get bored listening to the same voice for an hour.

"I run the bass through a 501 Symetrix compressor/limiter," Luke continues. "Rick has great tone anyway. I just run the EQ straight up and down, but I use a lot of different reverbs on him so I can pull his volume back, because the front-of-house speakers we have are limited. Next time we go out, we'll have something different, but they have a 1-inch horn in them, and I hate 1-inch horns. I do the same thing with the drums and try to pull them back, keep it off the edge to where you notice the processing over the playing.

"It's nice to have your own equipment and environment to mix in and to mix outside," Luke asserts. "Anybody who mixes outside knows what a pleasure it is mixing in free air. Occasionally, we'll be between a building, like at Grand Central Station [NYC], where we were under a bridge and about 80 feet away from a cement wall, so there were reflections and I had to adjust. I'm mixing on a pair of monitors and initially figured that it wouldn't sound the same inside as it does outside, but we set the crossovers up, kept going in and out and adjusting things, so it's pretty damn

close. I was afraid mostly of low end coming through the ceiling, but if you go in there, it's absolutely dead, unless you open the window. It's a great environment to mix in. It's really easy on the ears because I can turn up and down the whole mix that I'm listening to."

Despite compensatory actions, the equipment is taking a terrific beating. Luke jokes that this tour could serve as free research and development testing for any company. "We beat the shit out of things—we heat them up, we shake them, we don't spill anything on them, but we add dust," Luke laughs. "It was 108 degrees on top of the bus in Baker, California, and about 120 degrees in the back. We didn't turn on the ADATs because we didn't want to fry those, and the DAT machine was down at that point, but all the power amps did really well and the crossover did well. Everything performed fine, and the Mackie is absolutely wonderful. It's seen dirt, it's slammed up and down. In St. Louis, we changed the springs in the back of the bus because we'd hit bumps and the equipment would literally lift off the shelf five inches and just slam down. We put an inch of foam underneath, but that did nothing. That was a big hole in pre-planning, and I'll take the blame for that, but we were scrambling at the end. The stuff is still launching, so every other day I'll find a couple of screws on the shelf or on the floor and I'll put them in a yogurt cup I have. When I get home, I'll put it back together like a jigsaw puzzle.

"Any companies that make circuit board input jacks, think about it twice," Luke advises. "When they hammer up and down, that's the first thing that goes. Even with strain relief, the circuit board input jacks are pulling off. In Symetrix gear, they usually sandwich it so there's not a lot of play, but on the Yamaha SPX900, which is a great piece

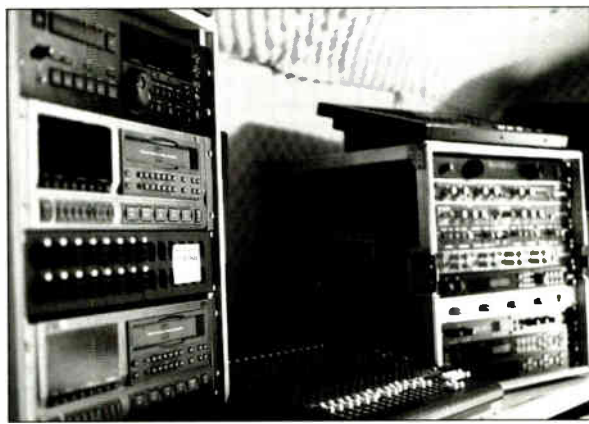


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of gear, the output jacks have had to be resoldered a couple of times."

"One day, I opened up the lid and there was a pool of water in the speakers, so I dumped it out and it sounds great," Reese adds with a laugh. The same with the bass drum. Luckily, new drummer Ken Tondre, who normally endorses Ayotte drums, had the forethought to have Fibes construct an acrylic kit for this tour to withstand the elements.


The variables haven't always been kind to the small entourage, either. They've had to battle the rain and the heat, bus breakdowns and less than glamorous accommodations. "To save money, we've been staying in a lot of campgrounds and truck stops, and you don't want to take a shower in some of those places," says Tondre. "We slept in a Walmart parking lot one night, and the next morning we couldn't find a place to take a shower, the day after we didn't have time, and after the third day, you start to get a little irritable."

Still, the artistic expression is the crucial objective, and that was Hobler and his brother's initial impetus in forming Anomaly Records. "Rick and I have been playing in bands together for eight-and-a-half years," Hobler says, "and every time any of the bands had major label interest, they all said, 'You guys are good, your songs are a little too varied, let's make everything sound like this one,' which is why we named the band Sonic Joyride. And that's why we do all the styles we do."

Both Reese and Tondre attended Berklee School of Music: "We learned how to overplay at Berklee," Tondre laughs. "But after that, I became more of a fan of John Mellencamp and song-oriented things and the aggressive playing of the Foo Fighters. What I'm trying to add is more of a solid, foundational groove to this unit, but still have a little bit of the progressiveness."

"We were a little bit of a runaway train for a while in the rhythm section," Reese admits. "Ken's perspective has really focused us. The next record will have the same intensity, and the musicianship will be there, but it will be a little more focused and song-friendly."

With the touring problem mastered, the members feel as though they can realize just about any fantasy they dare to have. Next on the horizon: Europe. "We've actually been asked to ship our bus over there," Hobler says, "and we can't see any reason why we can't make that work." ■



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CIRCLE #128 ON PRODUCT INFO CARD

## SOUND FOR FILM

WHAT I WANT  
FOR XMAS

by Larry Blake

I am a real Scrooge when it comes to Christmas. My friends and family know that I'm not going to give them anything and that I don't want anything from them. It's not that I've grown into my adolescent image of the man who has everything: a mansion, limos and a personal DC-9. I just can't think of anything I need so badly that I want anyone to go out and buy for me.

That does not extend to my professional life, where

picture editing system. In the best of all worlds, this should be the last time the original production track is transferred, and indeed many films have gone a similar route, almost all utilizing Avid's Open Media Framework technology.

The problem is that there's still too much need for user-supplied R&D to put all of the pieces together. The exchange of audio files and edit data is nowhere near as easy as it should be, even between Avid's own Pro Tools, Sound Designer II and Media Composer files. As a result, picture and sound departments (along with telecine and sound transfer facilities) have to monitor the whole process more than should be necessary.

all available information. Accomplishing this midstream switch in production sound sources requires much juggling on the part of the assistant picture editors, who already have enough things on their mind without having to deal with sound.

- Build parts of the other road connecting to 20-plus-bit Nonlinear Heaven. As good as standard 48kHz/16-bit linear digital can sound, there are still obvious compromises, chief among them being perceived noise. Nonetheless, the math of the situation leads me to believe that the higher resolution will prove beneficial in the long run. I have never heard 24-bit recordings, although my gut tells me that 20-bit will be the point of diminishing returns—the down-

## POST · SCRIPT



the grass on the other side always contains a new software update that will make life easier. And while I hope then that "easier" translates to better work, it often just ends up making things more flexible, delaying decisions (and post sound start dates) longer and longer.

So without further ado, here is my holiday wish list for the coming year.

- More parts of the road connecting the world of audio post-production to the picture editing department. The road clearly begins with the first day of shooting and getting production audio into the hard drives of the

There are other parts of the equation that need more tweaking to enable sound to flow smoothly from picture to sound departments. Picture editors may want or need to cut with multitrack source material (either from a 4-track Nagra D or Zaxcom Deva, or an 8-track MDM; the same also holds true for standard 2-track sources), having access to individual tracks. More likely though, they would want only one track, chosen by the production mixer for dailies for each scene in the standard fashion, although the sound presented to sound editorial would have

side of 24-bit, of course, being the even greater storage needs. But then when I see 3-gig hard drives advertised for \$200, storage worries are getting to be beside the point. Still, I'm not going to start chanting the 24-bit/96kHz mantra as the Holy Grail for all audio recordings. These numbers are being touted about by many in the audiophile sector, most of whom I assume have never even heard 20-bit original recordings. I want to prove to myself that the difference between 48 kHz and 96 kHz is really noticeable; maybe rigorous

—CONTINUED ON PAGE 178

# AN INDUSTRY LEGEND REVITALIZED

## RE-SCORING THE FOX FANFARE TO 20-BIT DIGITAL

by Mel Lambert

Time can be unkind to revered traditions. We all recognize the opening drum roll from the 20th Century Fox Fanfare, but does it sound as good as the upcoming movie? Maybe not, thought the powers that be at 20th Century Fox. The decision was made: re-score the piece in 20-bit surround. And at the podium was David Newman, son of its original composer and conductor, Alfred Newman.

That was the scene in early October as a hand-picked 98-piece orchestra gathered at Fox Studios' brand-new Stage #1 in West Los Angeles—since renamed "The Newman Scoring Stage"—to record new versions of the 21-second fanfare, in addition to shorter versions for Fox Television and Fox Star Production logos. In the hot seat at the 96-input SSL SL-9000 J-Series scoring console for this inaugural session was industry veteran John Kurlander, who recently relocated to these shores after many years with Abbey Road Studios, London.

Kurlander's goal, he says, "was to make [the re-scored fanfare] sound as good as possible. By using the best mics, with the best preamps in the best room, with the best console, I think I have a fighting chance of pulling it off." Kurlander had just completed Newman's score for the Thanksgiving release of the Fox animated feature *Anastasia*.

Out on the Newman

stage, designed by studio bau:ton, Kurlander had rigged a central cluster of three Neumann tube M50 omnidirectional mics laid out in a basic Decca-Tree configuration, just in back of the conductor's podium and hoisted some 12 feet in the air. For left and right outriggers, he selected a pair of Neumann TLM-50s—a "splendid mic, with a distinct sound all of its own," the en-

gineer says—plus an additional TLM-50 on the basses. Orchestra sections were covered with a variety of Schoeps cardioid MK5s, Neumann 184 and Coles models. In addition, a pair of ambience mics were located on 25-foot poles either side of the control-room window. Primary Fox Studios liaisons on the date were Mike Knobloch, director of film music production, and Robert Kraft, executive VP, Fox music.

"This new Fox Stage sounds wonderful," says composer/conductor David Newman. "My intention was to create an energetic sound from this orchestra; the room has wonderful bottom-end [response], which helps the visceral energy of the piece. It's a very powerful score!"

Compared to traditional orchestral layouts, Newman had developed an "experimental" configuration for the 5.1-version Fanfare recording, with percussion in a line across the rear of the room and a pair of field drums located extreme left and right in front of the orchestra. "We thought that might produce some particularly spacious results," Kurlander says, "but eventually decided that the front two field drums were too distracting once the brass came in. So, after the run-



PHOTOS: ELIZABETH J. ANNAS

Above: David Newman conducts the 98-piece orchestra. Left: The mix team moves blindingly fast at the SSL 9000 J-Series



through, we only had them play for the opening two bars.

"Basically, I created a 5.1 mix in the control room, using the central cluster for the primary LCR, with the outriggers blended to left and right. The sectional mics were then added very subtly to give more presence for

the strings and woodwinds. The pair of ambience mics were used to derive the left- and right-surround channels." Monitoring in the control room was handled by soffit-mounted Genelec 1035Bs for LCR and 1038As for the surrounds, in addition to a trio of ATC SCM20A near-field units.

Primary recorders on the  
—CONTINUED ON PAGE 181



From left-to-right (rear): Assistant Engineer John Rodd; John Rotondi, Fox Chief Engineer; rigging engineers Damon Tedesco and Tom Steel; scoring mixer John Kurlander; Mike Knobloch, Fox's Director of Film Music Production; conductor David Newman; Robert Kraft, Executive VP, Fox Music; (in front, L-to-R) Stacey Robinson, Fox Stage Manager; Sandy DeCrescent, orchestral contractor; and Kiki Morris, Executive VP, Fox Sound Department.

# MUSIC EDITING FOR TV

## DIFFERENT STROKES FOR DIFFERENT FOLKS

by Loren Alldrin

When it comes to editing music for television, there's no one approach that works for every show, producer or facility. Each situation demands its own unique spin on the music editing process, ensuring that no two soundtracks are created equal. *Mix* spotlights two cases in point: Pfeifer Studios and The Nashville Network.

"You lock them all up with a two-pop or a sync click. This gives you the ability to not only shift things around, but you can use parts of the music that you wouldn't have been able to had the vocals been there. You can do a clean music edit, then back the vocals into the 'A' side of the edit, or whatever. Splits are a godsend.

"There have been times when we've broken the music itself down into multiple tracks," Baldree says, "but only when a composer wanted to add a track to an existing mix. Then we'll just plug the synth or other instrument right into the Dyaxis and overdub the part right on top of the edits that I've already

we can go to the split mixes if we need to."

If a few split tracks are good, then lots of splits must be better, right? No way, says Baldree. "When you're mixing a spot with clients in a room, if you want the session to last until the millennium, you give them every option in the world. While you're mixing the voice-over and sound effects, you give them the option of raising the shaker 1dB...it's ludicrous! We have to kick out three spots in a day and several projects in a week. We do our music production in the music room and deal with all those decisions there. The vocals get the message across, so that's why we do splits with the vocals—anything that has to do with the message, we'll do a split on. These days, we could lock all the Dyaxis systems together and do 48 tracks of real-time editing on a spot. In the long run, it would actually hurt you to use the technology to its fullest extent. It would slow everything down."

Baldree points out the obvious but often-overlooked fact that an understanding of music can be a real plus for the music editor. "I do a lot of spots for record promotion," he says. "Sometimes, I have to put three songs inside 30 seconds and make it flow. The songs are often in arbitrary

keys, and I may need to swap the order so the keys step up nicely. My background of being a musician really helps in these situations. A couple of times, I've even loaded in drum samples and built my own drum fills between songs.

It's nice to be able to add something musical to the process.

"I see more and more musicians becoming music editors," Baldree continues. "Being able to read music is nice, but it's not necessary. Sometimes, it's enough to just have a feel for the music. If you just play your guitar in your spare time, that may be good enough. Still, I've done classical editing where I've needed to read a score, and I've had to read lead sheets when editing music for commercials. According to my clients, it's a really bad experience when they find themselves dealing with a music



Above: Jim Baldree at Pfeifer Studios in front of the Dyaxis. Right: The new digital audio mix bay at The Nashville Network.

### PFEIFER STUDIOS

Pfeifer Studios is a three-room facility located in Los Angeles. Staff composers and sound designers do original music production for commercials, TV and film, and the post-production facilities offer music editing and mixing, ADR, voice-over recording and sound design. The backbone of Pfeifer is the facility's three Studer Dyaxis II workstations, two of which have the VideoMix option for nonlinear video.

Having the composer and the post-production engineer under one roof means the music can be delivered in the most flexible format possible. For chief engineer Jim Baldree, that means separate music and vocal mixes on DAT. "You just load in the music only, the lead vocal and the background vocals as separate elements," says Baldree.



done. That's pretty much a best-case scenario, when you've got the composer right there."

Working with composers who understand the specific demands of TV music is another time-saver for Baldree. "For commercial music that's scored to picture," he says, "we'll often do different versions. Our composers are usually thinking about this while they're composing, being careful to create music that can be edited into a :15 or a :10. That makes it really easy. Sometimes, a client will make a change you can't really plan for. At that point,

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CIRCLE #129 ON PRODUCT INFO CARD

editor who doesn't have a music background."

#### THE NASHVILLE NETWORK

With a name that's virtually synonymous with country music, it's no surprise that a good part of the TNN studio's production workload is made up of music shows. Music is more than just a part of such productions—it's the *heart* of these shows. In addition to performing post-production and editing, TNN shoots many of the shows on its own soundstages.

"When we shoot a live music show," says audio engineer Marc Rapp, "we are either recording tracks live with a band, or they come in already mixed *sans* vocals—a performance track. In either case, we record during the TV show, add the vocals and mix down after the show. We typically record the show to multitrack and run a separate Sony PCM-800 with first-generation timecode and all the audience mics. We leave two tracks for the eventual mix, which we do directly to the PCM-800. This also leaves us some tracks to do alternate mixes for an instrumental mix or vocal-only mix. We send that 8-track tape to the edit bay with code, and they integrate that into the show when they edit the show."

Audio post engineer Dan McClurg and his team take it from there, performing music editing in one of TNN's many edit bays. TNN's three main rooms are online facilities with Harrison 10B automated consoles, 8-channel Sonic Solutions Sonic Studio workstations and CMX editors. Three smaller nonlinear video bays have NightSuite video editors/audio workstations. An additional stand-alone digital audio room is near completion, designed for post-production audio "polish," as well as the creation and pulling of sound effects offline. Equipped with a Yamaha 02R console, Sonic Studio workstation with NoNoise and PCM-800, this bay will be where TNN does most of its voice-over work and editing in preparation for online sessions in the other bays.

"We've needed to do everything from tiny edits to the mixing of raw tracks in the edit bay for a last-minute fix," says McClurg. "In those cases, we have the ability to pull a multitrack into the edit bay. For the most part, though, music editing now is utilitarian in nature—it goes in underneath as incidental or background music, or music under voice-over. We're often customizing the music in terms of length and the number of phrases needed to fit the spot. In

the NightSuite bays, they can do some simple music editing. If it's a fairly easy piece of work, they can do the edit without involving one of the larger bays. Otherwise, the complex stuff with multiple channels or some type of problem will come out to one of the main bays on PCM-800 for a polish pass."

McClurg joins with engineers in all phases of production to sing the praises of the digital audio workstation. "Before the workstations," he says, "music editing was difficult and time-consuming. With the CMX systems constrained to frame accuracy, there were times when I dearly wished for the workstation when we had to shorten a piece of music done onstage that was going back with video. If we have a problem like that now, where the music has to be abbreviated, we dump the section into the workstation and fine-tune it. When the need arises, the workstation has become an integral and invaluable part of what we do."

Still, with so much processing power at his fingertips, McClurg tries to perform as little invasive surgery on the music as possible. "We generally try to stay away from compression, EQ and the like," he says, "unless a piece of music has a problem or we're trying to integrate it into the big picture of the project. If some outside music needs to be treated in some way, we do what we need to do. If needed, we'll apply processing at the Harrissons. It's just quicker and much more efficient with the automation, without clicking on the mouse. Without a dedicated hardware interface on the workstation, it can be a tedious one-operation-at-a-time process to build up any automation. With these automated consoles sitting here, it doesn't make any sense to do it the hard way.

"Our own techniques have changed due to the workstations," McClurg continues, "and client expectations have changed, as well—especially in regard to the speed with which they expect edits to happen. If they're waiting in the other room for an edit, they know you've got the tools to pull it off. Sometimes edits are easy, and clients have seen things happen very quickly. That sets a precedent that's sometimes hard to live up to, especially when the music you're working on doesn't lend itself to easy edits." ■

*Loren Alldrin is a freelance writer and producer based in Nashville. His book on microphones is due out soon from MixBooks.*

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CIRCLE #30 ON REPRODUCTION CARD

# POST NOTES

First, a gratuitous plug for holiday gift-giving: Fox Home Entertainment has released a video of "Creature Comforts," an Academy Award-winning animated short by Nick Park, creator of the lovable Wallace & Grommit characters for Aardman Animations. The video also includes last year's Oscar-nominated "Wat's Pig" and "Adam," along with "Not Without My Handbag." Buy it for the kids, keep it for yourself...Now, at AES, Gefen Systems showed its M&E Pro QuickSample High Resolution System for instant playback of effects and music tracks over an ATM network, then announced that John Ross of Digital Sound & Picture in Los Angeles had purchased three systems for use on the facility's 21 Pro Tools systems, with a 350-gigabyte server...Speaking of libraries, JRT Music (NYC) has released four new CDs from the Image Music Library: Technosphere, Media Themes #2, Celtic Spirit and Funk in da Mix; **Sonic Environment Laboratory** in New York City has released a custom music and effects (including Foley hits) demo of its audio post work; Ron Rose Productions in Detroit has released Motor City Mouths Volume III, a voice



*Simon LeBon, singer in Duran Duran, and Nick Wood, a longtime friend and a composer/producer in his own right, opened Syn Studios in October 1996 as part of their Syn Production Co. Ltd. Japan in Tokyo. Productions out of the two-room facility consist mainly of film scores and original compositions, and to help further that goal, LeBon and Wood recently signed up with Film Music Associates. Another crucial aspect of the facility is its ISDN lines, which allow musicians to stay at home in New York, Los Angeles, London, Moscow...wherever, and perform in real time. Pictured here is the 64-channel Tascam M-5000 room. Recording is to DA-88.*

talent CD; and Media Beat of Louisville has released its seventh CD in the Flying Hands Production Music Library, entitled "Ear Paint"...Yamaha announced sales of 02R consoles to Photomag in NYC (2). The Castle in Nashville and Digital Audio Post, a division of Nashville's Emerald Sound...Medallion•PFA in Toronto, meanwhile, purchased a Lafont Pano-

ramix console with Flying Faders for Mix Theater 7...Uptown Automation announced sale of a 990 system to Brasher Sound in the L.A. area, to go with its new Lafont Chroma LCRS console; All Post of Burbank and Skywalker Sound of San Rafael, Calif., each purchased 40-channel moving fader systems...Skywalker, the TEC Award-winning post house, also bought 12 more WaveFrame workstations (ten 8-channel versions, two 16-channel), bringing the company total to 32...Fairlight, having made a huge dent in Hollywood and throughout the Pacific Rim, is making further inroads into Europe, with MFX3plus systems going to Sincronia, Telson and IDEP Escuela in Madrid, Canal Satellite Digital in France, Imagen Line in Barcelona, Ediberto Lima Producciones in Lisbon and Lydselskabet in Denmark, not to mention the million-dollar sale to Warner Bros...Producers Video in Baltimore bought a complete Genelec surround system, including the 1037B, 1030A and 1092 powered speakers. Across the country, 20th Century Fox added 1035B speakers as its main LCR array for the new control room off the Alfred Newman Scoring Stage...In news from IHB, Air Studios of London just took delivery of its first Genex GX8000 MO disk recorder, and the Egyptian Radio and Television Union purchased 300 (!) Portadat PDR1000s. Not a bad order to fill...And in SSL news, Anvil Post Production in Denham, UK, ordered the first two Avant digital film dubbing consoles even before they were packed in the crate for delivery to AES; and Discovery Networks bought a Scenaria for its new



## CALREC Q2 GOES UNITEL GOLD

*Calrec made the U.S. debut of its Q2 analog console at the September AES convention, but 60-input versions of the board had already logged hours in the new Unitel Silver and Gold trucks, the latter at the MTV Video Music Awards in September. Then, a week after the convention, Unitel Gold was down at the Kennedy Center in Washington, D.C., for a performance by Whitney Houston. No audio remote was hired; all the music was mixed through the back of the Unitel Gold "video" truck. Calrec also recently sold a 48-channel T Series board to ABC Television in New York for use in the Monday Night Football truck; a 60-channel S2 to Trio Video of Chicago's mobile; a 60-channel S2 board into Northstar, a mobile out of Game Creek Video in New Hampshire; and two 60-channel S Series desks to NEP in Pittsburgh.*



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Discovery Channel Television Center in Miami...Sound Techniques took delivery of the first 32-track Postation System from Digital Studio Processing...Orban has announced sales of more than 75 Audicycs since the product introduction last spring, with the largest sales to Radio Free Asia (8) and KSKS Radio in Fresno, Calif. (5)...Project Notes: Sound supervisor Larry Kemp completed the edit for *Rocket Man*, a fall 1997 release...APC Studios in Atlanta recently finished the audio post on the feature film *The Real Reason* and a number of videos to promote the film *Soul Food*...Crescendo! celebrated its first anniversary in San

Francisco...At DubeyTunes Studios in S.F., Vance Walden mixed the Mill Valley Film Festival trailer, Hunter Pipes mixed a series of 48 national Fox Sports promos, and owner Stuart Dubey composed, recorded and mixed several original scores for Silicon Gamings' new interactive digital gaming installations...Leroy Clark of San Francisco Production Group sent real-time voice-over to Kaymen in New York for use in a commercial for E\*Trade, the online investing service...615 Music in Nashville put together music packages for A&E Network's new *Garden & Galleries* and *America's Castles* series...David Livingston of DV8



The Yamaha 02R room at Photomag, NYC

in Los Angeles composed quirky, humorous music for three TCF National Bank spots: Dog Trainer, Delivery Room and Tattoo...Michael Stanton, staff composer of Nashville's Audio Productions, scored *Blood, Friends & Money*, a film produced in Nashville by the Nashville film community...Studio Updates: Producers Video Corporation of Baltimore put in a new audio suite, designed by Walters-Storyk and featuring a Fairlight F.A.M.E. console...Chace Productions in Burbank, a full-service film post facility that specializes in audio restoration of soundtracks, formally dedicated the Rick Chace Theatre, a dub stage named for the company founder who died five years ago...The Desk Doctor handled the complete wiring and installation of two new dubbing stages and ADR and Foley stages for Westwind Media in Burbank...Clatter&Din, the Seattle audio post facility, has upgraded all four of its audio suites to Avid AudioVision 4.0...The "new" Bad Animals (Seattle) is complete—mainly cosmetic and client services upgrades to reflect its new post-only emphasis. ■

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CIRCLE #131 ON PRODUCT INFO CARD

—FROM PAGE 170. WHAT I WANT FOR XMAS testing will show 60 kHz to be a point of diminishing returns.

I think it's funny that many of us take pains to eke out an extra 4 dB of signal-to-noise ratio by raising our digital "0" reference level to -16, just like our analog recording brothers and sisters raise their reference fluxivity from standard +3 levels to +6, or even +9. But when you add up the large number of premix and final mix tracks that have to play wide open (i.e., there's just no time to write mutes), the cumulative effect of 4dB noise reduction per track is indeed very noticeable.

Just as the use of Dolby SR on a



— Richard Dodd,  
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the safety ground connected to the center tap), whose difference is 120V.

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multitrack makes it sensible to reduce distortion by recording at perhaps an even lower reference fluxivity, such as 0 (185 nWh/m), so it follows that the noise reduction offered by 20-bit recording makes the film industry standard digital level of -20 dBFS quite acceptable. This way my gain structure and metering will remain constant from original recordings to premix to final mix to print master. In fact, I can foresee film mixers trying to mimic the 24dB headroom that they got with SR-encoded wide, thick 35mm mag tracks by lowering the reference level even another 4 dB. To be sure, with 21st-century 20-plus-bit recordings, you will not hear the increased noise or decreased resolution. My problem with this approach brings up another of my more fervent wishes...

- Reduce the level of loud mixes. If

charge of creating ad campaigns, and lock them in a room and play them their own trailers at full volume until they all agree not to pull this shit any more. I'm only 49% facetious about this solution.

- Attention to the problems of archiving digital mixes. It's a no-brainer to talk of the benefits of 20-bit digital recording, but it's much tougher to deal with how this material will be preserved and played back in 15 years. This problem exists because in most situations, the medium that you're recording on is not the same as what you're going to put on the shelf. If you look back over the radical improvements that have occurred over just the past five years, you'll find that the combination of changes in hardware and software versions, plus changes in backup mediums, would make it diffi-

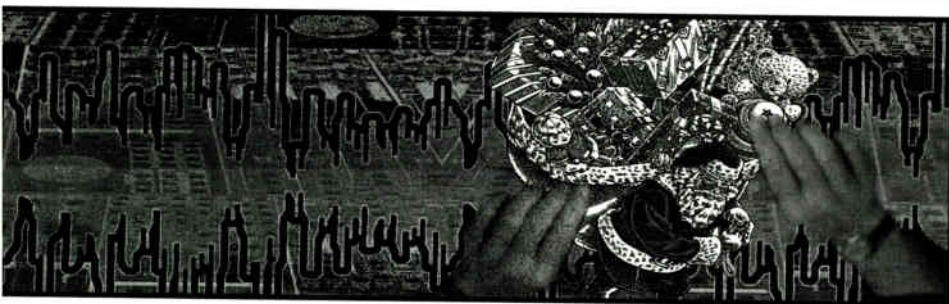
record of the file names and where the backups are located. In a situation like this, if one is really anal and wants to spend the time and money to protect the downside, you will string off these files to a standard linear medium (such as 2-inch), so that playing them back in 20 years will require less breath-holding and crossing of fingers.

If your files contain EQ or time-domain processing that was heard in the final mix, you would be advised to have these options turned on when doing the transfer. TDM is a wonderful tool, but I wouldn't want to bet that it's going to be playable in the same form in a decade.

Said documentation should include every fact, no matter how obvious by today's standards: What was the monitoring level represented by the 0 VU head tones, the version number/date and last frame of picture (LFOP) of each reel, etc.? You need to note how M&Es and TV non-curse-word versions were created, especially noting edit information for the latter. Did you make a special mix for mono optical playback (16mm is still in use for nontheatrical playback, especially at armed forces bases) or for restricted-dynamic-range video mixes? If so, what was the headroom that you aimed for and how did you do it (limiting to individual stems, the overall bus, or both)? Of course, I'm talking in the broad technical sense here, such as busing and overall level of stems—not every fader move. Then again, if you, as I, try to make your stems play at unity gain throughout the whole mix, you should make note of whatever changes (“lower music 3 dB at 500 feet in R-4AB”) need to be made during print masters.

I've often thought that a binaural recording of the mix taken at the console (along with a reference blast of pink noise from each speaker channel) would be the definitive document of what the director approved at the final mix. (Remember to print tones on your hard drives just as you do on tape!)

You should also not forget to salt away, with your backups, the videotapes that you edited and/or mixed to. This is often overlooked, but in the near future, when more and more mixing will be to video, it will be important to have a field-accurate copy readily available to anyone who would be dealing with your sound masters. These sound elements will use timecode in some form to match a certain telecine transfer of the film, and you should try



20 dB of headroom is not enough for your mixes, then the chances are good that your films cannot be played back (to audience members who don't want to be pummeled) at the standard fader setting. To recap this procedure, we're talking about pink noise being brought into the console at the 0 VU reference level, setting the amplifiers so that you get a reading of 85 dB/C (slow) per channel. You can do the math yourself as to how loud this can get on a digital mix, what with five or seven full-frequency speaker channels and 20dB headroom per channel.

Too damn loud, I tell you.

Of course, perhaps the biggest offenders are not films themselves but the trailers; not only are they brain-numbingly loud for all of their 150 seconds, they are also the first thing that audiences hear when they sit down. And therefore the fader goes down, and stays down for the film proper, no matter how quiet and subtle its track. Many industry groups have talked about all sorts of solutions, but it seems clear to me that we should gather the handful of mixers who do over 90% of the major studio trailers, along with the marketing people of said studios in

cult to play back many workstation files created in 1992. Granted, we're talking about original cut elements here; most films over the past few years have still been mixed to standard SR-encoded 35mm mag or 24-track 2-inch.

But the onset of digital dubbers will bring about a fundamental shift: The recording medium (hard disk) will no longer be the archive medium, which may be some combination of magneto-optical drives, Digital Linear Tape backup, DVD, or... While I agree wholeheartedly with the industry's current approach to use SR-encoded 24-track as the we-can't-go-too-far-wrong approach to backing up masters, there remains the simple point that this somewhat negates the benefit of using digital audio in the first place.

Part of the solution in this transition era (will we ever leave it?) is for each film to thoroughly document *on paper, in words* what happened at the final mix and at the print master. A simple track sheet is not enough. For example, if you were playing original cut elements direct from workstations at the final mix (without first going through a premix), you need to keep a

to make sure that no one will ever have to go to the trouble of re-transferring the film in the future.

Also, each facility should hold onto CD-ROM (and, soon, DVD) program discs of all versions of all programs that you use, along with key discs. This should include your workstation software, any plug-ins, backup software, console automation data and computer operating systems.

• And last, but not least, I want to see, once and for all, the THX logo removed from all prints and posters (as in, "THX Digitally Mastered"). I know I sound like a broken record, but this is just obscene marketing that flies in the face of what everyone who edits and mixes film sound knows: Every mix stage is aligned to industry standards of level and frequency response, and there is no way that you can say that the B-chain at the mix stage has an effect on the sound job. A crappy production track will still sound crappy, an ADR line from hell will still stick out like Kareem Abdul-Jabbar amidst pre-schoolers, and an obnoxiously loud mix will still be obnoxiously loud. Does THX want to be blamed when faults occur in mixes that have the THX logo plastered over the tail credits?

This past spring, I nearly blew a gasket when I saw the THX logo all over the re-release of *The Godfather*. Mind you, this is a 25-year-old film that was originally mixed in mono and was remixed by its original sound supervisor, Walter Murch. *That* means something to me (and to the public, if they know or care about such matters). But to tout the fact that the remix took place in a THX re-recording stage, as if the mix is "in" THX, is nothing less than misleading advertising.

Please, nice people at Lucasfilm, you have done much good with your THX and TAP programs in trying to raise the standards of theatrical and home video presentation. Keep up the good work without selling your services as something they're not.

Although I have no connections to the North Pole, send your holiday wish lists to P.O. Box 24609, New Orleans LA 70184, fax 504/488-5139, or via the Internet: [swelltone@aol.com](mailto:swelltone@aol.com). ■

*Larry Blake is a sound editor/re-recording mixer who lives in New Orleans for reasons too numerous to mention, although one of them would have to be that so many great people settle here from around the country.*

—FROM PAGE 171, AN INDUSTRY LEGEND

Fox Fanfare date comprised a pair of Genex GX8000 8-track, 20-bit MO recorders, rented from Digital Music Transfer, and a Sony PCM-3348 on hire from Tim Jordan Rentals. "We laid a 5.1 mix on one GX8000," Kurlander says, "and used the other to record direct outs from the three Decca-Tree mics, the two outriggers, the bass mic, plus the primary woodwind mics." As backup, the PCM-3348 received the same bus-output signals via a bank of dB Technologies AD122 20-bit A-to-D converters, feeding a Prism Sound MR-2024T Interface Adaptor that multiplexed the various 20-

bit signals into 16-bit data, which was recorded into open tracks of the digital multitrack.

"I've made comparisons between the Genex A-to-Ds and the dB Technologies [units]," Kurlander says, "and can hear little significant difference between the two. When we come to remix the basic elements to the large number of 5.1, stereo, mono, Dolby Surround and other audio formats that Fox will need, then we will use whatever sounds the best." As it turned out, for these subsequent transfers Kurlander used his live 5.1 mixes, rather than go back to the elements. ■

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# COAST TO

## L.A. GRAPEVINE

by Maureen Droney

Only in L.A.—where one short afternoon took me to a rehearsal at CBS Television City with Mouse and the Mousetrap, house band for the late-night show *Vibe*, then over to upscale Larchmont where Skip Saylor Recording has unveiled the new Studio B, and finally to Hollywood and Capitol Records for a look at that company's newest surround-ready mastering suite.

If you haven't caught *Vibe*, check it out—The Mousetrap snaps. These are heavily credentialed cats: Led by musical vet and master keyboardist Greg Phillinganes (Stevie Wonder, Quincy Jones, Paul Simon, Eric Clapton, Michael Jackson—hey, you get the picture), the seven-piece ensemble features drummer (also producer/writer) Terri Lyne Carrington, the well-known Peter Michael (Escovedo, to those of you not in-the-know) on Latin and electronic percussion, and bassist Byron Miller (George Duke, Luther Vandross, Herbie Hancock...). Rounding out the crew are writer/producer/keyboardist David Delhomme on

—CONTINUED ON PAGE 184

Below: The Mousetrap Band on the *Vibe* set, with leader Greg Phillinganes (bottom, right). Right: The *Vibe* sound crew (L to R): J. Mark King, Randy Faustino, Barton Michael Chiate.



PHOTOS: MAUREEN DRONEY



## NY METRO REPORT

by Dan Daley

New York has been the home of the underground record for decades, so the increase in recent years of independent recordings isn't really anything new to the studio community. And even as the rest of the country has seen a growth in the amount of mid-level mastering facilities around, New York has actually been ahead of that trend, as well.

Home to places like Sterling Sound and Hit Factory Mastering, Manhattan has also been honeycombed with mid-level mastering facilities for years. DB Plus Digital Services opened its doors a decade ago, riding the increasing popularity of the CD format, the rapid success of which caught a lot of facilities off guard. "I saw it as a good niche, and it turned out to be a successful one right from the beginning," recalls studio owner Joel Kerr. As a result, the independent artists and labels that have fueled much of mid-level mastering's growth in recent years are not as critical for DB, which still derives a significant amount of its revenues from major-label work. However, notes Kerr, he still has to offer faster service, lower prices and more diversity to keep his share of that market. "The independents come to us for full-service mastering because they can't afford the top-line mastering rooms," he says. "But we get a lot of major-label work because top artists may go to a place like Sterling for designer EQ, but we do the stuff that comes later like the CD singles and formatting. It's a kind of post-mastering set of services, but it's affordable, and that's something that even the major labels are looking for these days. They used to just call in a P.O.; now they call and ask, 'How much for that?' You don't so much go up against places like Sterling as you use them by offering complementary types of services and pricing."

DB uses the trademark technology of mid-level mastering: a DAW, in this case a Sonic Solutions system. And the facility shares an emphasis on expertise with the larger mastering houses: the studio's chief engineer is Gene Paul, son of Les. At \$150 to \$175 per hour card rate, Kerr says it's a viable market sector. However, he does see its limitations, mainly due to the fact that, as more independent artists become aware of the need for mastering, they also find more recording studios and home-based studios offering versions of it for even less money. "I'd like to say the future is bright, but I'm not so sure," he observes. As a result, he is diversifying further, adding multimedia

—CONTINUED ON PAGE 188

# COAST

## SESSIONS & STUDIO NEWS

### SOUTHERN CALIFORNIA

At Scream Studios (Studio City), producer/engineer David Kahne mixed Warner Bros. artists Fishbone and Jim Ebert mixed Meredith Brooks for Capitol, with assistant Doug Trantow...Menthol mixed their new Capitol release at Skip Saylor Recording (L.A.), with producer/engineer John David Hiler and assistants Ian Blanch and David M. Gibney...Save Ferris recorded their Epic debut in Studio A at NRG Recording in North Hollywood with producer Peter Collins, engineer Clive Goddard and assistant Steve Mixdorf...At Cherokee Studios in Hollywood, producer Shell Talmy and engineer Joe Baldrige tracked newcomers Flick, and Jane's Addiction tracked a song for their reunion LP with engineer Dave Fridmann. Josh Achziger assisted on both sessions...Producer Don Was and engineer Ed Cherney mixed Richie Sambora's new PolyGram release at L.A.'s Brooklyn Recording...

### NORTHEAST

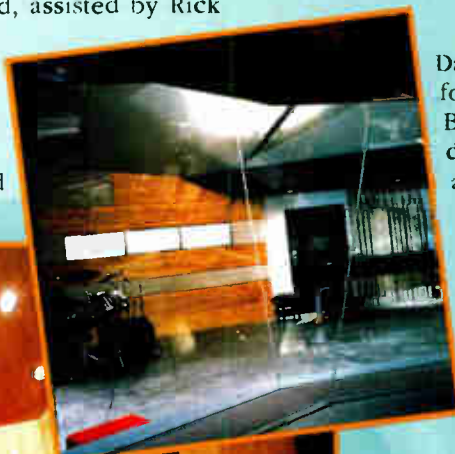
Panamanian rockers Talisman mixed songs with producer Fidel Morales at BearTracks Recording in Suffern, NY. Doug Oberkircher engineered, assisted by Rick Pohronezny...At Soundmirror Studios in Boston, John Newton and Jeff Baust engineered and edited a Gershwin CD for Deutsche Grammophon featuring Andre' Previn on piano and



Hot team the Fitch Brothers (Mark "DJ Stew" Pirrone in the back, and Lenny Bertoldo) have remixed cuts for radio and for clubs for artists such as Gina G., Amber, Tony Toni Tone, Zhane, Vanessa Williams and Whitetown. Their Boston studio is equipped with a Mackie 32-B, Tannoy System 8 MkII monitors, a Kurweil K2000RS, EMagic's Logic Audio sequencing software, and a variety of gear by Roland, Korg, Lexicon, Yamaha, Alesis and Digidesign.

David Finck on bass...Angry Hill recorded four new songs at Sound Techniques in Boston with co-producer/engineer Ted Paduck. Bob St. John and Anthony Resta were also in, mixing for N.O.K...Producers/songwriters Carl Sturken and Evan Rogers worked on five songs for Boyzone's first U.S. release (on Polydor) at The Loft Studios in Bronxville, NY. Al Hemberger engineered the sessions...Actor rapper Will Smith mixed new material at Hit Factory Studios in New York City with longtime

—CONTINUED ON PAGE 189



Counterpoint Studios, a new three-room facility in Salt Lake City, is owned by Gianni Skolnick and Blair Sutherland. Shown here is Studio A, a 750-square-foot recording space with drum and vocal booths. In the control room are an Amek BIG console, a Studer A827 24-track, a Genelec 1039A monitoring system and custom diffuser panels and broadband diffusion elements by the designer of the facility, studio bau:ton. Counterpoint handles a lot of music recording and mixing but is also well-suited for post and multimedia—the studio offers a complete editing facility and provides video, graphic and 3-D animation services. All studios are tied to a central machine room and can be linked together.

# NASHVILLE SKYLINE

by Dan Daley

Never underestimate the power of the entertainment industry in this town. I wrote in October that American Airlines had canceled its last nonstop flight between Nashville and Los Angeles, in the process eliminating the only flight with a first-class cabin between those two cities. Once word of that got around, the music business here—and to a lesser extent in L.A.—mobilized. Travel agents and the Nashville Chamber of Commerce coordinated letter-writing campaigns and petitions to American. But it was a conference call on the afternoon of September 22 between RCA Label Group chief Joe Galante and Arista/Nashville president and producer Tim DuBois (along with a few other music industry leaders) and American Airlines' executive management that quickly resolved the matter.

After hearing the dismay of the music business in Nashville about the cancellation of the one remaining flight (at one time there were three daily nonstops on American), the airline not only reinstated that flight but added a second daily nonstop between LAX and BNA, providing the cities with both morning and afternoon service. The move was roundly applauded in Nashville's music business, studios included, particularly the ones that had recently made major investments in new facilities and that were counting on increased traffic between Nashville and Los Angeles for supporting revenues.

American was no pushover; the airline wanted and got a verbal commitment from the community to provide the airline with mailing lists with which the labels agreed. But, as Tim DuBois points out, the action and the result illustrates the collective power of Nashville's music community when it chooses to focus itself to this degree. "It shows that we have the ability to band together for the good of the industry," he says. It's doubtful whether any other major entertainment city's music business community could have acted as quickly and as cohesively as did Nashville's in this instance. In this case, Nashville's relative smallness and the interconnectedness of the music business infrastructure here—the same traits Nashville is often chided for—enabled it to respond quickly and decisively. (On the other hand, it's also doubtful that

any airline would have pulled such an important route from a major market such as New York, L.A. or London.)

Another L.A. connection: the growth of the film industry in Nashville in recent years. The last fiscal year's value of film and television production (exclusive of music videos) in Nashville, according to the Mayor's Office of Film, was \$8.2 million, and this value has been growing steadily for the past five years. There's been a significant increase in locally made films in the region; the hump has been getting more Hollywood work to come to and stay in Nashville. Michael Stanton, a staff composer at Nashville's Audio Productions, recently scored the drama *Blood, Friends and Money*, which features local actor and writer Jim "Earnest" Varney, and has been contracted to score three more mid-budget films made and produced in Tennessee in the next 12 months.

Travis Turk, chief engineer at Audio Productions, says he's seeing a spike in the number of locally made films. "They're B movies, but there's a lot more of them in recent months than in years past," he says. It has resulted in an increase in the amount of film work—ADR, scoring and mixing—being done at Audio Productions and some other local studios, such as Seventeen Grand, which has done scoring for parts of five Hollywood productions in the past year. Turk adds that he's not sure which way the trend will go in the future. But the current amount of work has been enough to cause him to change out his analog console and Fostex Foundation digital system for a new Fairlight MFX-3plus and Nashville's first Mackie digital board. "Film is happening here, at least in the short term and on this budget level," he says. ■

Send Nashville news to Dan Daley at [danwriter@aol.com](mailto:danwriter@aol.com) or fax 615/646-0102.

—FROM PAGE 182, L.A. GRAPEVINE

keys, DJ Melo-D, from L.A.'s Number One urban radio station, The Beat, on turntables, and the eclectic Toshinarei "Toshi" Yanagi on acoustic and electric guitars.

On a break between rehearsals with everybody's favorite guest bandmember Dave Koz, Phillinganes took a few minutes to discuss life on a five-nights-a-week show. *Vibe* is a Quincy Jones/David Salzman production, so it

was Q himself who approached Phillinganes to put the band together. "I knew there were people I wanted, and I had recommendations from Terri Lyne, who had worked in Arsenio's band. I went to Terri first; she was so good on *Arsenio*, I figured her experience would be a help, because doing a show like this is different like you can't believe—I'd say I haven't been challenged like this in at least ten years."

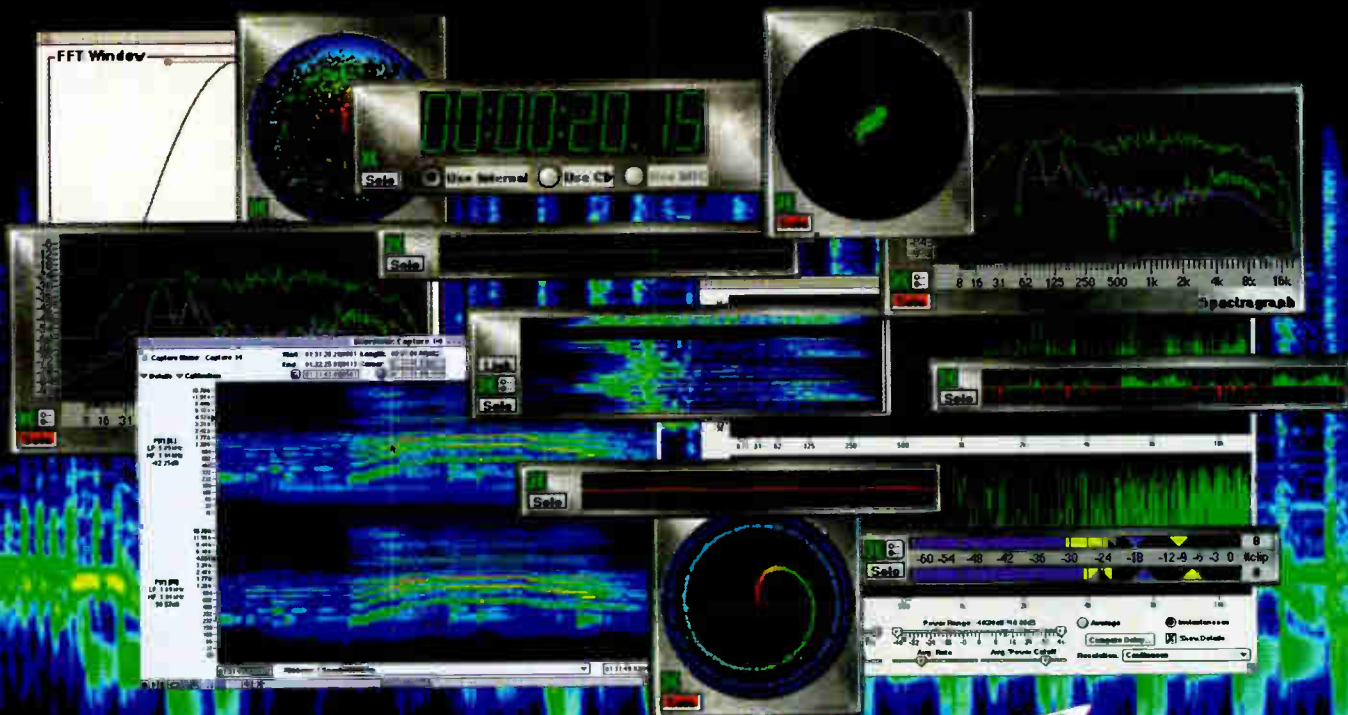
That's a mouthful from someone with Phillinganes' track record. But think about it—the band has only seconds to pump up the studio audience so their excitement will translate down those tiny cables to your TV later that night. Add to that pressure the need for innumerable recognizable-but-hip bumpers, back-up chores for a different musical guest almost every night, keeping the audience jumping during commercial breaks, and did I mention you have to look good? And, on *Vibe*, no charts to help you out. "That's tired," says Phillinganes. "How are you going to get excited with that? It was okay for *The Tonight Show*, with a big band sitting down, but this is different. If you can't feel it, reading ain't going to help!"

There wasn't time to chat with all the musicians, but a few minutes with Peter Michael showed me that along with traditional percussion instruments, he's equipped with an Akai MPC 60, an E-mu 4K and a Mac computer. "That way we can back up any artist who may come on, in whatever capacity they need," he explains. "They can bring in their own sequences or sounds and we'll run them so the artist can sound like themselves. They send us vocals, loops, or we can program whatever they need. We're really trying to remove all those limits that might scare people away from coming on TV because they won't sound the way they want to."

Sound mixing chores are handled by P.A. mixer Randy Faustino, music mixer Barton Michael Chiate and production mixer J. Mark King. "The P.A., really two separate systems, was designed by ATK Audiotek," says Faustino. "We have the big ATK Audiotek proprietary C6 cabinets in the air for all the music, with ATK CSW-218 subs under the bleachers; then there are 110 Hotspots under the seats for dialog. For some shows those Hotspots would be the whole P.A.—because in television, still, they mostly only care what goes to air. Consequently, in the studio most



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shows have no low end at all, and it's just a wall of mush. But this is a Quincy Jones production, and Quincy wanted concert sound in the television studio. We've achieved that—in my experience it's the best sound system in any television studio."

Faustino mixes for the audience on two Yamaha PM4000s. Chiare and King share the main audio control room, with Chiare monitoring on classic Gold Tannoy and mixing on two Soundcrafts—a 44-in 6000 and a 24-in Delta—while King mans the 56-in SSL 8000 G Plus, listening on his own Bruce Maddocks-made Usco speakers. How do they coordinate monitoring? "Very carefully," laughs Chiare. "Actually, I mix 90 percent of the music on headphones."

Routing for TV is always mind-boggling. King gave me a quick rundown of his board setup: satellite feeds, video and audio tape players, digicarts, output from the (very cool-looking) 24 Countryman Isomax mics used for the audience, not to mention all the stage mics, wireless and wired; then there're outputs—myriad minus mixes to cast and crew. Let's just say these guys know how to max out their equipment five different ways every week. Rock on, guys.

Skip Saylor Recording's Studio B has been entirely revamped. "Studio B was my original room, the one I started out in," says Saylor. "It's been a popular room, and a profitable one, but I always had the goal of making it into a premiere mix room. Studio A put me on the map, and took me to a different level when I opened it, but my heart was always in Studio B."

The renovation was extensive, and the facility now includes a separate machine room, a comfortable lounge and a very practical, cozy seating area in the studio itself. The overall result is a much more spacious suite with a lighter decor. "We took this place down to the two-by-fours and started over," comments Saylor. "And, I have to say, it turned out even better than I planned."

The focus of the room, of course, is the 80-channel desk, an SSL 6064 E/G and its accompanying 16-channel Neve 8014 sidecar (featuring 1073 modules). The SSL was modified with the addition of a G Plus center section. "All the stereo bus cards are replaced," explains Saylor, "and the difference is dramatic. It's a much clearer, improved stereo image."

As you'd expect from a Skip Saylor room, there's a plethora of outboard in

the racks, including Lexicon 224XL, EMT 252, TC Electronic 2290, Eventide 2016, multiple AMS signal processors, GML, Neve and plenty of API EQs, and Manley, UREI, Neve and dbx compressors. In the studio, there's a Yamaha grand piano.

Overall, Saylor's has been extremely busy the past few months mixing projects for Foo Fighters, Everclear, Queen Latifah, DJ Quik and Tony Toni Tone. Musing on the upturn in his business, Saylor comments, "Sometimes it seems like we're the last studio in town that hasn't switched over to some kind of post. I think we've gotten busier this year because we don't scoff at the record business—we embrace it. That's why I got into recording in the first place, and that's what we're still doing. Sure, we'll lock to picture if you need to, because we accommodate our record people, but that's not on my marquee. I tell people we're the last of the cowboys, and if you want to make a kick-ass record, come to Skip Saylor Recording."

Over at Capitol Mastering, where recent projects have included Luis Miguel for Warner Bros., The Alkaholiks for Loud/RCA, Aaron Neville for A&M and Meredith Brooks for Capitol, manager Pete Papageorges showed me the new Vincent Van Haaff-designed suite. Set up for DVD authoring and both 7.1 and 5.1 surround, the suite is the definition of multifunctional: Besides its surround setup, it has audio-for-video capability, the 6-channel fiber-optic ISDN transmission lines that are standard at Capitol, tielines to the famous Capitol live chambers, and it is Sonic Solutions-networked to the other mastering rooms. "We want to be able to go wherever the market takes us," explains Papageorges.

It's a logical extension: Capitol has lately been involved with several surround projects. "We're more familiar than most with surround technology," comments VP of Studios Michael Frondelli. "All our engineers are accustomed to it because we do so much film work here. Then, of course, we did the Eagles' *Hell Freezes Over* DTS mixes with Elliott Scheiner, and the David Benoit album for DTS with Al Schmitt. We're very much in touch with the medium."

For the first new mastering room at Capitol since the '70s, the console was designed completely in-house. "Nobody is making mastering consoles anymore," explains Frondelli, "and also, nobody is making boards quiet enough for our purposes. So we had to

sit down and say, 'What are the features we need?' and then we had to build it."

One of the unique features of the board that stems from the direct-to-disc days, according to Papageorges, is the ability to switch from one side of the board to the other for preset EQ. "Back then, they had to assemble the running master on tape and play back directly to the lathe, which of course can't start and stop, so they'd set the EQ for the first song on one side, then set up the second song on an identical other side of the console so they could crossfade between them. A lot of the mastering engineers got used to that, because instead of clicking up EQ changes, they can crossfade, which allows for more flexibility. So, because we could, we added that feature here, employing double Sontec EQs."

The networking-between-rooms feature gets a lot of use at Capitol. All six Sonic Solutions-equipped suites can exchange or duplicate sound files. "We use the features all the time," says Papageorges. "If you're pressed on a deadline, you can run simultaneous sessions—you can do your edit versions, then instead of running off a copy you



PHOTO: MAUREN DONEY

*Mixing in Skip Saylor's refurbished Studio B (L to R): Engineer Rick Clifford, artist Kasey Hagood and producer Andre Egnas.*

can just send it to another desktop for copies, or pull it off and run the parts next door. You can EQ and load in your pieces in one room, and, in another room do your sequencing and editing, saving that extra hour of load in and out. That saves money and time."

"We learned from our studios over

the last few years that diversity is the key," concludes Frondelli. "We always want to be able to say 'Yes' to whatever our clients ask. Now we intend to be ready for everything." ■

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—FROM PAGE 182, NY METRO REPORT

and enhanced CD capability, and a vocal booth for overdubs and sampling work, as well as looking into audio-for-video work.

The Master Cutting Room can trace its lineage back to the original in-house Record Plant (later 321) mastering suite, which was bought by current owner Joe Brescio. Engineer Duncan Stanbury says the 8-year-old facility has had lots of activity as a result of the growth of independent labels in recent years. And even though that market sector has seen some contraction since this time last year, Stanbury says it's still strong in New York, augmenting the stream of reissue work from major labels. His own niche, cutting to vinyl on his own lathe, has been especially busy. "If you asked me, I'd say that vinyl is coming back in a big way," he says, "especially in house and hip hop, which is a very New York thing."

The studio has three suites (all with Sonic Solutions systems, as well as analog and digital outboard processing gear), which go for \$150 per hour. Stanbury says the studio's rates have been able to come up in recent years, thanks mainly to a strong base of repeat customers. "It's a very healthy market segment, I still believe," he says. "As long as there's a large market out there that can't afford the big mastering houses, there'll always be a place for midlevel facilities like this one. And in New York, that's been the case for some time now."

Ground Zero is one of the most recent entries into this market sector, founded last January. Designer and principal Jimmy B says the facility is growing at "a nice, steady pace" and is focused around developing the career and clientele of mastering engineer Joe Lambert. But, he says, business based on individual artists has to be augmented with larger clients; in this case, Arista Records has become a regular customer, and Ground Zero has been handling mastering for compilation records of musical appearances on *The Late Show With David Letterman*, and mastering for the PBS show *Crackle Box*. "And we've been getting a lot of referrals from the disc manufacturers, like Disc Makers and In Record Time," Jimmy B adds. "So the contraction in the independent record business hasn't really affected us, because they're not the mainstay of our business." At \$175 to \$275 per hour, Ground Zero is priced somewhat higher than its cohorts but still below the \$350-plus



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charged by top mastering facilities in town. "There's still a lot of growth potential left in this market, but one thing I will say is that it requires at least a three-year commitment to developing that business."

**New Kid in Town Dept.:** Producer, composer and former Sundragon Studios owner EBN OZN has opened up Sound Over SoHo, a single-room, John Storyk-designed facility downtown with a 40-channel CAD console (with Megamix automation) and hard drive, digital linear and analog media, as well as a Fairlight CMI Series III. The facility is intended to be EBN's personal facility, although he will do commercial and collaborative projects there, as well. ■

*New York items? Fax to East Coast editor Dan Daley at 615/646-0102 or e-mail damwriter@aol.com.*

—FROM PAGE 183, *SESSIONS & STUDIO NEWS* cohort Jazzy Jeff and Rob Chiarelli and Fanatic...

**NORTH CENTRAL**

Garbage are tracking the follow-up to their Platinum debut at Smart Studios in Madison, WI...

**SOUTHEAST**

At The Castle in Franklin, TN, Lionel Richie wrapped up tracking and overdubbing sessions with producers James Carmichael and Lloyd Tolbert. Ralph Sutton engineered, assisted by Mike Purcell. Also, new Arista artist Brad Paisley mixed with producer Frank Rogers, engineer John Kelton and assistant Paula Montondo...Soul Asylum tracked for Columbia on the 8078 at Criteria Recording, Miami, with producer Chris Kimsey, engineer David Nicholas and assistant Mark Dobson...John Berry mixed for Capitol with producer Billy Joe Walker, engineer Chuck Ainlay and assistant Mark Ralston at Masterfonics, Nashville. The studio recently hired Shawn Kay as manager and Keith Gilliam as assistant manager...The Sound Kitchen in Franklin, TN, had Randy Scruggs in mixing self-produced sessions for Warner Bros. with engineer Steve Marcantonio and second Tim Coyle...The Nitty Gritty Dirt Band tracked for Rising Tide Records with producer Josh Leo, engineer Ben Fowler and assistant Allen Ditto at Emerald Sound in Nashville...Producer Randy Jackson and engineer Allan Abrahamson spent

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a week tracking and overdubbing Columbia artist Dionne Farris at her home, using Atlanta-based RM Audio's 48-track, Trident-equipped remote truck. RM staffer John Tyler assisted...The Walker Sisters recorded a CD of piano duets at Creative Music Recordings in Wellington, FL, with engineer Steve Satkowski. Studio owner Marilynn Seits assisted...

**SOUTHWEST**

Windham Hill artist Liz Story recorded her third CD at Luna Recording in Prescott, AZ. Upcoming projects include dance master Tom Chasteen, recording for Caroline Records...

**STUDIO NEWS**

Engineer Paul Stubblebine, formerly with San Francisco mastering facility Rocket Lab, has gone solo. Still based in S.F., he's now offering engineering and consulting services on a freelance basis...Hit Single Recording Services (El Cajon, CA) installed a DDA AMR-24 in its Studio B. The studio also started an in-house label, named Martian Consulate Recording, "dedicated to the musically experimental and bizarre"... Live production company Unitel installed 12 custom-modified ATI 8MX2 mixer/preamps on each of its two new remote vehicles...Sound Station Seven (Providence, RI) added Uptown 990 automation to its recently installed API Legacy...Online distribution company and record label N2K (co-founded by producer Phil Ramone) purchased Genelec 1031, 1030 and 1092 Active Monitoring systems for in-house playback...New York facility PGM Recordings hired Miguel Kertsman as executive producer. ■



Agents of Good Roots tracked their forthcoming RCA debut in Studio D at A&M Studios in L.A. with producer Paul Fox and engineer Jeff Tomei. Standing (l to r) are Andrew Winn (guitar, vocals), J.C. Kuhl (saxophone) and Brian Jones (drums, vocals). Seated are Stewart Myers (bass, vocals) Tomei and Fox. In his first-ever collaboration with Fox, Tom Lord-Alge mixed the record at Encore Studios (Burbank, Calif.).

—FROM PAGE 74, MARK KNOPFLER

*Did guitar enthrall you that way when you were young? Was it a love-at-first-sight experience?*

Absolutely. I looked at a little picture of one on the back of a magazine when I was tiny and pointed at it and looked at my dad and said, "I want one." It was just one they were selling mail-order. For the next 12 years, I basically pestered him for one until I got it. The first guitar that I saw proper was one of those plastic ones with a picture of Elvis on the head.

*What was your first band?*

The first time when you start playing with some school friends... that is a band. You've got a drummer playing on the beat instead of off it, and two guitars and no bass. The guitarists know three chords—or two—and you start playing together. That's how it happens. You plug into the same amplifier. It's a shambles, but you just play on. Not amazingly different from now. [Laughs]

*How old were you?*

Fifteen. I couldn't afford an amplifier, so after I blew up the radio at home, I just borrowed friends' acoustic guitars. I say "guitars," but they were Rosettis, Kays and things that were just made of orange boxes. I used to just play on those. Because of that, I ended up playing folk joints; and because of that, I learned how to finger-pick.

It used to be that people got into rock groups because they owned amplifiers and they owned vans and they owned drum kits. I just had an electric guitar, but I didn't have an amplifier. I probably couldn't play very well, either. So it didn't work out, and I ended up doing the folk thing.

Later on, I managed to have one rail track in country blues and the other in electric, and I managed to keep the whole thing alive—acoustic instruments and electric instruments—by doing both. It was good for me, because otherwise, I wouldn't have learned how to finger-pick. The years playing with Steve Phillips [a member of one of Knopfler's groups, The Notting Hillbillies] brought a lot to my playing in terms of delving deeper into blues styles, which require more than straight finger-picking. I'm glad it went the way that it did. From deprivation comes great strength sometimes, and also from wanting something very badly.

I think it's a mistake to just drench a young kid with everything that he

wants. There is a certain stage in life—later on, perhaps—when you've got to give a kid some opportunity and the ability to be exposed to the right things. But when they are really young, it's not so bad to have them really want something. I really loved my guitar when I got it, you know. It's good to wait for things sometimes.

I was playing tennis rackets for years, before I even went near a guitar. So this obsession builds up, but there is nothing wrong with that, because you need that obsession to fuel you through life. You need to be slightly obsessed with it, because it's going to exhaust you,



PHOTO: SIMON ALEXANDER

when you do actually have the thing in front of your eyes all the time. You're going to need that obsession to feed what is going to happen, because you are going to become tired of it. You are going to look at it rather accusingly for all of the trouble it has brought, as well as all of the happiness, you know.

As an adult, you've got to want this thing. You've got to love it. You've got to get excited by it. You've got to be able to say something like, "I love Gibsons." [Laughs] To say that, as a grown man, you've got to have been a little bit obsessed as a kid. ■

*Rick Clark is a Nashville-based writer and producer. He would like to thank Richard Bennett and Chuck Ainlay for helping facilitate this interview. Thanks also to Bob Merlis as well as Robyn Becker, Jean Seal and the good folks at Damage Management.*

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## THE FAST LANE

—FROM PAGE 16, YEAH, I SAID THOSE THINGS  
victims, shot this beam right by her face and splatted it on the far wall, and she immediately turned her head and looked at the wall—15 feet away. So I give you Observation One: The sound comes from wherever you aim it. You can get people throughout a room to move their heads in perfect unison just by swinging the transducer array around. Like cats and a laser.

Then I had someone aim it right off my right ear and slowly sweep it across my face, which brings me to Observation Two: Beam tightness is as claimed—when the beam was not touching my ear, I heard the sound coming from the wall behind me, as did the others in the room. But when it hit my ear, I heard one earphone—loud. Then, as the beam hit both ears, I heard mono inside my head. By the way, when the beam was smacking me upside the head, the others heard the music coming from my face...of course. How many cool ideas can you think of for this? How about movies or video games where the sounds actually track and emanate from their on-screen "sources"? When a guy walks off screen talking, his voice would continue to move exactly as it should, including upward should he happen to climb the offscreen stairs into the offscreen attic. And how many bad ideas, like the ultimate lip-sync? You beam the recorded voice right into the singer's mouth.

I should now point out that the objections of one certain trusted friend in particular—whose life is dedicated to designing and making the finest and most accurate audio transducer systems possible—stand. He pointed out that unless there are some serious changes in mankind's technical abilities, or the surprise repeal of the current laws of physics, such a system would take so much power to deliver acceptable real-world performance that it would literally cook listeners in the process.

Now, though I feel significant agitation at paying seven to ten bucks to see a movie with bad sound, I don't think that I would want to hear even perfect audio at that price. You can only pay with your life once—so I want to save it for something even cooler than this.

So comes Observation Three: It sounded like my very first AM radio. Not loud enough and impressively distorted. They say they are five years away. It cer-

tainly isn't ready now, and I wouldn't want to be the one to get it there in five years. Every time some bleeding-edge technology is announced, there are those who say, "No way," and others who say, "Way."

My speaker-making friend had some hard numbers to back up his position—massive power at biomass-destroying frequencies would be needed to fly this, and that's if transducers could be designed to pull it off. These guys say "No." They say they can do it without frying their audience. I guess we will all have to wait and see.

## THE SECOND THING I SAID

In my September column, "Ad Nauseam: I've Told You This 5 (.1) Times," I beat up Sony for the state of disrepair that a theater was in.

Now as it turns out, our very same Mickey Toneband who turned me on to the ultrasonic sound people took exception to my theater-bashing. I have to say that I went to the Sony Spooky-plex in New York and saw some films, IMAX and normal, and the audio was very good (the IMAX was 3-D, and the headsets actually had personal speakers to help stabilize audio imaging). So I thought I would give the local boys another shot or two. I went to two other movies in Sony theaters and...same sting. I'm sorry...same thing. Distorted audio, torn cones, off-balance imaging.

Is it unfair of me to comment on this as a Sony responsibility? I have not been to every theater in America, only the better ones in L.A., Baltimore and a few other cities. So my data is based on a sampling that is determined by where I happen to be when I want to see a movie. From what I saw, these theaters are in the same dismal audio shape that they were in before Sony's acquisition sweep. I complained about them then, and I complain now. I feel that it is, in fact, Sony's responsibility to do more than just paste their name on these places. One I had vowed never to return to but changed my mind when I drove by and saw that it had become a Sony theater. I figured they could fix it. And they can. But they didn't.

The manager had absolutely no idea what I was talking about and claimed that everything was fine. That is what always happens. They will usually offer your money back, but not the hour roundtrip in wasted travel time.

In L.A., less than half of the theaters that I have gone to (various owners) had audio problems that were severe enough for me to abort. Those man-



agers actually seemed to have a vague idea of what I meant and offered to leave a message for some other mythical manager who has more power than they.

My statement stands. Irv's House 'O Celluloid may not have the knowledge or assets to fix a blown speaker, but Sony does.

#### **BUT WAIT...**

There's more multichannel trouble a'brewin'. In that same column, I also pleaded for sanity and maturity in multichannel mixing. This concerned yet another friend who felt that I was gunning for multichannel mixing as a concept or art form.

She found me on the AES floor and explained that she has been mixing multichannel projects for years and felt my plea to be an unfair attack on the entire concept. It was not. In fact, several months ago I completed the installation of a comprehensive 5.1 system in my theater and have now finished the mandatory tweaking and trimming rituals. And I love it. Well, I love it when I get sane material and insane video games. But I don't like put-it-there-just-because-I-now-

can mixing. No, sir, don't like it at all.

And that is all I am complaining about. Multichannel audio holds more promise than one realizes at first. Not only can we precisely control imaging without transient-destroying phase-shift games, but we can for the first time generate a true 3-D audio environment,

**Every time some  
bleeding-edge  
technology is announced,  
there are those  
who say, "No way,"  
and others who say,  
"Way."**

where you can really hear the guy behind you hit the floor in a recording of a live metal concert. You can hear the backfill, the crowd. You can hear the police banging on the door in that intimate little nightclub bootleg. You can

hear it all. Studio recording can offer properly imaged synthetic reverb and ambience effects to warm up a cold mix without forcing mud into the front image area. The engineer can actually superimpose his listening environment over yours.

And there, dear readers, is the point. Discrete multichannel mixing is very powerful. And with increased power comes increased potential for disaster. I stand behind my original plea to take advantage of this technology in a rational, mature way, and to resist the temptation to turn it into a circus.

Keep in mind that if a multichannel speaker system is carefully designed and manufactured, and if all (but the sub) are truly *matched*, there is significant potential for lower distortion and unprecedented imaging accuracy. I have heard this, and I do believe. So now that I have one of these super-matched systems, I want to hear it move my listening experience a step closer to reality, not drag it into a Ringling Bros. tent. ■

*SSC fears those friends won't talk to him anymore now—or maybe they will have a lot to say.*

#### **INSIGHTS**

—FROM PAGE 48, **BERNIE GRUNDMAN**

vinyl record, it sounds amazingly good. Vinyl is still a very good medium: it's just delicate.

#### **How does vinyl compare with CD?**

The best thing about CDs is that they can consistently make a lot of them. For some of the vinyl recordings I've done, the CDs really cannot capture the nuances I hear in the vinyl. It's closer than it's ever been, and maybe with this new leap now to DVD, it will probably be as good or better. One of the problems with vinyl is that there is quite a range of quality, whereas with CDs it's more consistent. The biggest complication is behind the scenes—how to make that CD of the highest quality—because we're finding that there are a *lot* of losses between it leaving here and reaching the consumer.

*You told me once that you'd like to own a system for cutting CD glass masters here in your shop, rather than leaving it up to the manufacturing plant.*

I'd love one. Then we could experiment and find out what would make the best finished product. There are only a couple places in the country that will take a

[Sony] PCM-9000 [magneto-optical master]—it's not a very popular medium. Our primary product is either PCM-1630—that's still the standard—or a CD-R that they can transfer directly across.

**We find that people  
try to get a lot of energy  
out of the bottom end,  
and they muddy  
everything up.  
They've got a lot  
but it's not good,  
defined bottom.**

Being able to convert and work in a higher-bit domain has helped a lot. It's interesting that they found a way of improving CDs.

But, beyond that, there's a whole other area that's been opened up in the

last few years: the jitter problem. Who knows what losses depend on the cable you use; whether or not you reclock the devices; even the thickness and cycle time of the CD in the presses? We're finding out that it's *just like analog*. Everything makes a difference: the cables, the processors, the way they manufacture in the CD factory. You can send a master tape to three different [plants], and each of the CDs will sound different—sometimes dramatically different.

They may sound a little "grainy" or not have as much detail or lose a little presence. We had one that even lost bottom end. Anyone off the street could have heard the difference. We even had a factory make us three different CDs that were at different cycle times, and those *all* sounded different. What we realized was that some of these were subtle differences, but they add up.

*What do you do here to maintain data integrity? Do you have a master clock reference?*

No, we don't do that. We just reclock it before we go into our final masters.

*What about digital audio workstations? I recall from previous conversations*

*that you have problems with the way they sound. Any progress here?*

They all affect the sound. We prefer not to [use workstations], but sometimes we have to. We still have a [Studer-Editech] Dyaxis, but we're looking into a couple of new systems because of all this 96kHz [sample rate] and the high-bit-rate [material]; it's time to start re-evaluating these workstations. The time might be coming when we have to rely more and more on them. We do get away with not using workstations because we can stay with PCM-1630 or PCM-9000 format [and transfer direct]; we definitely think we get a higher-quality product that way rather than going into the computer. For difficult analog editing, we just digitize the section we need to manipulate and then generate a piece of tape that contains the edit.

*So your current technique for CD mastering is to simply assemble to PCM-1630 direct from various master formats?*

Yes. We get the best sound that way. It's a little awkward and more out of step with what the industry is doing,

because you don't have quite the flexibility. If [the material] is in the computer, you can manipulate it a lot, but then eventually you're going to have to erase the disks and you won't have it anymore. In our comparisons, we don't feel that we're getting the same quality. *Have you ever had projects come through here that you know have been edited on a workstation? What do you do?*

We've been mastering a lot of these recordings that come out of low-budget projects. They come off a workstation: they've been edited, assembled, faded

**The music really  
dictates what needs  
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and cleaned up—whatever you need to do to make it into a finished sequence, ready for EQ and level adjusting. We do this as well, but prefer to only put into the workstation recordings that need music edits or crossfades.

I will definitely go on record as saying that 100 percent of the time, if these clients come in with their original tapes and their assembled master—which has been in the computer and then dumped back onto another DAT—the sonic difference is obvious to *everyone* involved. You just can't bus around these digital signals the way we thought we could. We have a lot of [manufacturers] saying they've improved them a lot with reclocking devices, etc., but if it was so perfect, then why do we need all this stuff to make it better?

*What will 96kHz/24-bit bring to the mastering process?*

It's going to be able to sample the spectrum in greater detail; more samples per second will help the integrity of the original signal. Being able to measure and store and then play back the original signal with more accuracy and the higher bit rate really helps in keeping the integrity in the overtones and lower-level aspects of the recording, which is present even when it's loud.

*I notice that your personal mastering console is all-analog.*

Yes. We convert everything to analog

because we feel we can get better sound by doing a lot of our processing in the analog domain. If you talk to a lot of guys in the industry, they've gone back to analog EQ because it's just more musical. We have digital EQ, but it just doesn't sound as good. We believe in ours because we build our own. It's got a lot of flexibility: a 10-band graphic with 20 different center frequencies, and they are all step attenuators with half-dB steps. We have a couple of equalizers that we work between: a wide-band and a kind of medium/narrow-band. We can actually do a lot of shaping by using both equalizers.

*While in Japan recently, I visited your new mastering facility in Tokyo, headed up by Yasman Maeda, who worked with you here for several years. What was the thinking behind setting up what looks to be a clone of your operation here, but in Tokyo's Shibuya district?*

A lot of people might not know it, but we do a lot of work for some of the biggest artists in Japan. Since we were getting so much activity from Japan, I've started out with one mastering room [there].

Yasman came here about six years ago and said that all he ever wanted to do was be a mastering engineer. I was blown away because you don't hear that statement very often. He would come here every Saturday, and eventually we gave him a job as second engineer to Chris [Bellman]. On top of that, he had a lot of connections in Japan. It became obvious to me that he had an ulterior motive: He would really like to go back to Japan but would like to run his own little operation.

This was an opportunity for him as well as us to go into an area where we had a lot of respect and had already been doing a lot of work. Also, the whole Pacific Rim is getting bigger and bigger, and we wanted to be a part of that. During the last few years, Yasman got married and had a baby, so we decided to build a studio in Tokyo and put him in charge. We had our eye on a new building that was in the process of being built right next to Columbia Records in Shibuya. It's a pretty little area and not heavily commercialized. There's houses and shops around there, and a Shinto shrine across the street. It's got a lot of atmosphere.

*How detailed was your business plan? It's pretty expensive to operate a studio or mastering facility in Tokyo, especially so far away from home base.*

It is. But, because our employee was

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Japanese—and he was keeping up his contacts in the recording industry and record companies, and he had gone to a recording school there—we had an inside track. His friends did the negotiations for the building on our behalf. One friend that owns a couple of recording studios in Tokyo even signed for the building before we could, just to guarantee the rent. It was a really unusual gesture and a real leap of faith. In the U.S., we are a little jaded and cautious of everyone. Japan is very relationship-oriented. It's important to build a good relationship, as the people want to get to know you.

The studio in Tokyo is being run by one of our employees, and to our specifications. Because of our training, Yasman has a similar view of things. We want to maintain that integrity, but it's still a separate studio that has its own unique ways of doing things. Japanese producers like to stay with projects all day; they don't like to spend time listening to a [reference], then come back, do another session, listen to a ref again, and then maybe a week later decide it's okay. Many times, they do it all in one long session. Here, we would rather people listen to it and give us feedback. I think Yasman would, too, but it is a procedure that's hard to break down.

*I also noticed that the new room in Tokyo is slightly bigger than the rooms you have here. Is there a different philosophy?*

No, we wanted bigger rooms. Mastering has come of age; many times, it's become a more involved process. We have people coming in and spending a lot of time in the control room, so having a seat in back is a good idea. I don't have space here [gestures toward the back of his room] because of the lathe.

Our new studios [opening next year] will have one room that's dedicated only for disc cutting; the others won't have a lathe. We're going to have five rooms—one each for myself, Brian [Gardner] and Chris [Bellman], the lathe room for use by everyone, and an extra production room. If we have a backlog of production, we can have one of our assistants work in there during the day. We'll have two proofing or copy rooms. The production room might just be another mastering room—it's set up that way now—but it could also be a surround sound mastering room. A lot of mixers are being pressured into mixing regular music albums on multitrack 5.1 surround sound, but they want a place to master it; they'd like to come to a

place and iron out any differences in the mixes from track to track. We haven't decided that yet.

*Any advice you'd like to offer for new or up-and-coming mastering engineers?*

It still comes down to this ability of relating to the music; the *music* really dictates what needs to be done. An up-and-coming engineer should develop that musical taste and know the best of each type of music. If you do enough listening, you automatically start to be able to separate the good ones from the bad ones; you develop that sense within you of where you want to go to. You want to hear the recordings that are mixed and mastered well, but you also want to have a good sense of music, too. You're trying to serve the music, not just the sound.

*Is there one thing you'd like them to start thinking about when they first put up a master?*

I don't really have a consistent complaint with recordings I receive. I find now and then that there are certain processing devices used on a mixdown that are hard to deal with, including these "brute-force" program compressors and limiters. A lot of producers and engineers might not realize that they are going a little over the top with these devices. It's pretty hard to undo. [Without] good judgment, you can make something very unnatural-sounding.

One of the drawbacks of mastering nowadays is that people are making things loud for loudness sake and forget about the music. It might be impressive for the first 30 seconds or a minute, but musically, you become annoyed after a while. It becomes uncomfortable to listen to because there's no relief.

There are certain "blanket" things that you have to be careful of if you use them too much. You have "maximizers" that just make everything real loud on the computer. Even this [TC Electronic] Finalizer can get you into trouble by just squashing everything, [with] no inner dynamics. I'm not saying we don't make loud recordings—because a lot of pop producers are going for that—but with good judgment.

It all goes back to knowing the way music should sound. And opening yourself up emotionally to being able to sense when that's occurring. I have to do it, too, and be willing to back off. A mastering engineer needs to know when enough *is* enough. ■

*Mel Lambert currently heads up Media & Marketing, a consulting service to pro audio firms and facilities.*

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## ProTools Project™ Digital Audio Workstation for Macintosh

With Pro Tools Project you get 8 tracks of digital audio &, on some Power Mac systems, up to 16 tracks of playback & 64 virtual tracks! The Pro Tools Project system includes an audio card as well as award-winning Pro Tools software. You choose either an 888 or an 882 I/O to complete the package. Project also features MIDI recording and playback as well as QuickPatch™ punch-on-the-fly & when you're ready to upgrade, it's ready too.

### REQUIRES-

- Qualified NuBus or PCI Macintosh CPU
- 24MB RAM minimum
- Hard Drive, system software 7.1 or greater
- 14" monitor (17" recommended).



**JUST IN**

**MAC**

## ProTools 4.0 Software Digital Audio Software for Macintosh

Pro Tools version 4.0 software provides the next step in the evolution of Digidesign's award-winning digital audio production software for the Mac. Fully Power Mac native, 4.0 features noticeable improvements in every major area. ProControl™ support, improved automation features, real-time fader groupings & group nesting, plug-in MIDI personality files, multiple edit playlist, Sound Designer II functionality, Finder-style searching & sorting, and I'm out of breath.



## WINDOWS

## Session 8™ Digital Audio Workstation for Windows

Session 8 is a professional quality digital audio recording, editing, & mixing system created specifically for personal and project recording studios. Designed to operate with Windows 95 or Windows 3.1. Session 8 offers professional recording features, powerful random access editing, automated digital mixing, & unparalleled integration with most popular MIDI sequencers.

### FEATURES-

- 8-channel direct to disk digital recording
- Random access, non-destructive editing
- Automated, intuitive digital mixing environment
- Built-in volume & pan automation
- Complete SMPTE frame rate support
- Frame accurate sync with built-in .AVI video playback window
- Digital parametric EQ
- Support for multiple hard drive partitions
- Auto sample rate convert to 44.1 or 48 kHz mono
- WAV file format
- Choice of audio interface options

## SOUNDSCAPE DIGITAL TECHNOLOGY LTD.

## SSHDR-1 Hard Disk Recorder/Editor

A professional Multitrack Digital Audio Workstation, the SSHDR1 combines the highest quality processing hardware with easy-to-use Windows-based software. The most complete and affordable solution for high quality digital audio on the PC, the SSHDR1 has over 50 powerful editing tools and is expandable from 8 to 123 tracks, with up to 32 inputs and 64 outputs. Ideal for a wide range of applications ranging from project studios, to multi-unit 32, 48 and 64 track systems for major TV and film studios needing audio post production linked to video.

### SSAC-1 Accelerator Card

The new SSAC-1 is a DSP card that can be added to any existing SSHDR-1 system for faster processing as well as an additional 8 channels of I/O in the form of a TDIF port. This card is needed by anyone who wants to upgrade an existing system to V2.0.

### SS810-1 8 Channel I/O

This rack mount unit connects to the SSAC-1 card via the expansion port to give you 8 XLR ins & outs with superb A/D-D/A conversion. It also features an ADAT Optical interface. The SS810-D comes with the analog converters for connecting an ADAT without additional channels.

Version  
**2.0**



## CD & CASSETTE DUPLICATION

## marantz CDR615 / CDR620 Compact Disc Recorder



Each next-generation stand-alone write-once CD recorders, the CDR615 & 620 offer built-in sample rate conversion, CD-DAT/MD/DCC sub-code conversion and adjustable dB level sensing. Additional features include adjustable fade-in/fade-out, record mute time, & analog level automatic track incrementing. A 9-pin parallel (GPI) port and telephone 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)

## Telex ACC2000/ACC4000 Cassette Duplicators

Designed for high performance & high production, Telex duplicators offer easy maintenance and operation. The ACC2000 is a 2-channel mono duplicator while the ACC4000 is stereo. Each produces 3 copies from a cassette master at 16x normal speed & by linking additional copy modules, you can duplicate up to 27 copies of a 60 minute original in under two minutes.



### 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 & bias.

## STUDIO DAT RECORDERS

## SONY PCM-R500



Incorporating Sony's legendary high-reliability 4D-D Mechanism, the PCM-R500 sets a new standard for professional DAT recorders. The Jog/Shuttle wheel offers outstanding operational ease while extensive interface options and multiple menu modes meet a wide range of application needs.

### FEATURES-

- Set-up menu for preference selection. Use this menu for setting I/O, level sync threshold, date & more.
- Also selects error indicator.
- Includes 8-pin parallel & wireless remote controls
- SBM recording for improved S/N (Sounds like 20bit)
- Independent J/R recording levels
- Equipped with auto read cleaning for improved sound quality.

## TASCAM DA-20/DA-30mkII



- Multiple sampling rates (48, 44.1, and 32kHz).
- Extended (4-hour) play at 32kHz
- S/PDIF Digital I/O RCA Unbalanced In/Out
- SCMS-free recording Full function wireless remote

### DA-30mkII Additional Features-

- Variable speed shuttle wheel
- Digital I/O featuring both AES/EBU and S/PDIF
- XLR balanced and RCA unbalanced connections.
- SCMS-free recording with selectable ID
- Parallel port for control I/O from external equipment.

## Panasonic SV-3800/SV-4100



The SV-3800 & SV-4100 feature highly accurate and reliable transport mechanisms with search speeds of up to 400X normal. Both use 20-bit D/A converters to sat-sfy even the highest professional expectations. The SV-4100 adds features such as instant start, program & cue assignment, enhanced system diagnostics, multiple digital interfaces and more.

## Fostex D-15



The new Fostex D-15 is the least expensive timecode DAT on the market. It has a host of new features aimed at audio post production and recording studio environment.

### FEATURES-

- Chase mode functions built in
- Hold the peak reading on the digital bargraphs with a choice of 5 different settings
- Set cue levels and cue times
- Supports all frame rates including 30df
- Newly designed transport is faster and more efficient utilizing a 4-motor design. 120 minute tape shuttles in about 60 seconds
- Parallel interface
- Front panel trim pots in addition to the level inputs

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## MICROPHONES

**AKG C414B/ULS**

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**E-300 Studio Condenser Microphone**

Unique patterning side address mic that combines vintage cap/cik design with advanced head-amp electronics, the E-300 has an unusually wide frequency response of 10Hz to 20kHz & an exceptional dynamic range of 137 dB. It also features extremely low self noise of 11dB. Ideal for even the most critical studio applications. Shown with optional ZM-1 Shockmount

Unique powering of all E-300 Series condenser microphones is accomplished with a pair of rechargeable nickel 4-volt batteries in combination with 48V phantom power. This overcomes inherent current limiting associated with most phantom power supplies. & can supply 10x the current.

**audio-technica AT4050/CM5 Cardioid Capacitor Microphone**

The AT4050 multi-pattern condenser expands upon the AT4033 to set the standard for studio performance mics. Features: • 2 capacitor elements. • Cardioid, Omnidirectional, & Figure 8 polar pattern settings. • Vapor-deposits of pure gold on specially-contoured large diaphragms arranged through 5 steps to ensure optimum characteristics over years of use. • Transformerless circuitry results in exceptional transient response and clean output even under extremely high SPL.

**AZDEN UHF Performance Series**

Newly-designed handheld with supercardioid uni-directional mic element and 63 user-selectable channels. Uses 2 AA alkaline batteries or Azden Ni-cad. with the AMC-2A Charging Station.

**411UDR UHF Receiver**

Crystal-controlled, PLL synthesized UHF receiver with 63 user-selectable channels in the 794-806 MHz band. Up to 9 systems may be used simultaneously. Features both 1/4" and XLR output jacks, volume adjustment and can be rack mounted.

**41HT Handheld Microphone Transmitter**

Newly-designed handheld with supercardioid uni-directional mic element and 63 user-selectable channels. Uses 2 AA alkaline batteries or Azden Ni-cad. with the AMC-2A Charging Station.

**41BT Bodypack Transmitter**

63 user-selectable channels, input level control, standby switch, locking mini-plug connector and metal clip. Ideal for use with lavalier and headset microphones or as an instrument transmitter.

**AMC Ni-cad Battery Charging Station**

Turns the 41HT into the only rechargeable UHF microphone available. (Uses Azden AN-1A Ni-cad batteries - only). Fully charged, the 41HT will run for 4 hours. Charging time is approximately 12 hours.

**SENNHEISER ME66/K6P Short Shotgun Microphone**

This road ready mic system is perfect for camera mount and other shot gun applications. It's professional sound quality and affordable price combined with the flexibility of a modular setup make it a hard choice to beat.

## MIXING BOARDS

**MACKIE SR24x4 • SR32x4 Sound Reinforcement Consoles**

These consoles do for live sound what the acclaimed 8-bus series has done for studio recording. Both professional grade mixing consoles, the SR32-4 and SR24-4 were built to deliver the same kind of useful features found on "bigger boards" while standing up to 24-hr-a-day use.

- Fast, accurate, easy level setting via "solo"
- 4 submix buses.
- 3 band EQ w/ sweepable mids.
- 6 Aux sends.
- Globally switchable AFL/PFL.
- Mackie's "VLZ" technology for low noise.
- Tape return to main mix, mono out w/level control.

The new MS-1202, 1402, 1604 & SR Series 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 Consoles

Great for modular Digital Multitrack setups and hard disk recording, the M-1600 is part of Tascam's next generation series of recording consoles. It features multiple options for inputs and outputs and uses the same, easy to install D-sub connectors as Tascam's more expensive consoles, all in "a compact design."

- XLR Mic inputs w/phantom power on 8 channels
- Signal present/overload indicators on each channel.
- Balanced & Unbalanced tape returns & Balanced Group/Direct outputs using D-sub connectors.
- TRS Balanced Line Inputs on all channels.
- 3-band EQ with sweepable mids.
- 5 Aux sends (1 stereo)
- 4 assignable aux returns.
- Perfect for use with DA-88 and ADAT setups.

## MINIDISC MULTITRACKS

**TASCAM 564 Digital Portastudio**

The Tascam 564 Digital Portastudio combines the flexibility and superior sound quality of digital recording with the simplicity and versatility of a portable multitrack. Using MiniDisc technology, the 564 has many powerful recording and editing features never before found in a portable 4-track machine.

**FEATURES-**

- Self-contained digital recorder/mixer.
- Uses low-cost, removable MiniDiscs.
- 2 AUX sends / 2 Stereo returns.
- 4 XLR mic inputs.
- Channel inserts on inputs 1 & 2.
- 5 takes per track, 20 patterns, 20 indexes per song.
- Random access and instant locate.
- Non-destructive editing features with undo capability include: bounce forward, cut, copy, move.
- Full-range EQ with mid-range sweep.
- SPDIF digital output for archiving.
- MIDI clock and MTC.

Just in!

## SONY MDM-X4 MD Multi-Track Recorder

MD recorders are here! Offering up to 37 minutes of high-quality 4-track digital recording, the MDM-X4 is truly the next generation of personal multi-tracks. With a built-in mixer, exclusive Track Edit system, and a Jog/Shuttle wheel for sophisticated editing with ease, the MDM-X4 will encourage you to flex your creativity.

**FEATURES-**

- Records on high quality, removable MD data discs
- 3.5-gen. ATRAC LSI for wide dynamic range.
- 10 Input / 4Bus mixer.
- 2 AUX sends, 3-band EQ. • 11-point locator.
- Random access memory for quick playback and record from anywhere on the disk.
- Editing features include Undo, Redo, & Section/Song editing for flying material between different tracks.

## STUDIO MONITORS

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- 85Hz-27kHz, ±3dB.
- 2kHz crossover for accurate phase and a wide "sweet spot" for mixing.
- Accurate flat sound reproduction.
- Great for studio and multi-media applications.

## TANNOY PBM 6.5II Studio Reference Monitors

The PBM 6.5 II is the industry standard for studio reference monitors. They provide true dynamic capability and real world accuracy.

- 6.5" lowfrequency driver and 3/4" tweeter
- Fully radiused and ported cabinet design reduces resonance and diffraction while providing deep linear extended bass.

## SONY SMS-1P Powered Studio Reference Monitors

The new SMS-1P monitors are perfect for post production environments. They feature 2 types of inputs with independent volume adjustment, 15 watts of power, bass/treble control and shielding for use near computer monitors.

## JBL 4206 & 4208 Studio Reference Monitors

The 4206 & 4208 studio reference monitors are 6" and 8" respectively. Both offer exceptional sonic performance, setting the standard for today's multi-purpose studio environments.

- Multi-Radial baffle ABS baffle virtually eliminates baffle distortion.
- Superb imaging & reduced phase distortion.
- Pure titanium diaphragm high frequency transducer provides smooth, extended response.
- Magnetically shielded for use near video monitors.



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## PRO CASSETTE DECKS

### TASCAM 202 mkIII / 302



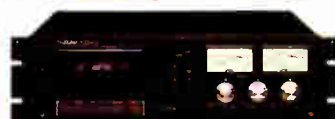
These decks provide high-fidelity sound reproduction and a wide frequency response, as well as a host of editing & play back features.

- Dual Auto Reverse, Normal and high-speed dubbing.
- Dolby HX Pro extends high frequency performance and minimizes distortion.
- Auto sensing for Normal, Metal & Cr20 tape.
- Intro Check, Computerized Program Search, Blank Scan and One Program quickly find the beginning of tracks.

#### 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. Cascade and Control I/O let you link up to 10 additional machines for multiple dubbing or long rec. & playback.

### 112mkII/112RmkII



A classic "no frills" production workhorse, the 112mkII is a 2-head, cost effective deck for musicians and production studios. It features a parallel port for external control and an optional balanced connector kit for integration into any production studio. The 112RmkII features a 3-head transport with separate high performance record and playback heads as well as precision FG servo drive capstan motors.

## SIGNAL PROCESSING

### BEHRINGER

#### MDX 2100 Composer



- Integrated Auto/Manual Compressor, Expander & Peak Limiter.
- Interactive Gain Control (IGC) combines a clipper and peak limiter for distortion-free limitation on signal peaks.
- Servo-balanced inputs & outputs are switchable between +4dB & -10dB. **NEW LOW PRICE!**

### APHEX 107 Tubessence 2 Channel Mic Preamp



The 107 delivers outstanding sonic performance, as well as a great degree of presence, detail, & image.

- Up to 64dB of gain available
- 20dB pad with red LED indicator, 2 LED input meter
- Full 48V phantom power with red LED indicator
- Low cut filter at 80Hz, 12dB/octave
- Polarity inversion switch with LED indicator
- Switchable +4dB/-10dB output, 1/4 Balanced.

### 109 Tubessence Parametric EQ



The Aphex 109 is an extremely versatile, high performance parametric vacuum tube EQ with professional flexibility and sound quality.

Great for "warming up" digital signals.

## EFFECTS PROCESSING



### Lexicon

#### PCM-80 & PCM-90 Digital Signal Processors



A great combination for any studio owner with an ear for the best. The PCM-80 delivers high quality multi-effects based on the legendary PCM 70, maintaining Lexicon's high standards for sonic clarity and extraordinary processing power. The PCM 90 is a digital reverb with its roots stemming from the studio standard 480L and 300L effects systems. Reverbs from telephone booths to the grand canyon, the PCM 90 is incredibly realistic. Together, they make an excellent addition to any rack mount arsenal.

### Lexicon MPX-1 Multi-Effects Processor



Lexicon's latest addition to their Digital effects family, the MPX-1 features top-quality effects in an easy to use, 1 rack space unit. With 56 Pitch, Chorus, EQ, Modulator, Delay, and world-class reverb effects accessible from the front panel, as well as: TPS and XLR balanced I/O and complete MIDI implementation, the MPX-1 creates a new standard for cost and quality in a multi-effects device.

### t.c.electronic

#### Wizard M2000 Studio Effects Processor



The M2000 features a "Dual Engine" architecture that permits multiple effects and 6 different routing modes making it a great choice for high-end studio effects processing.

#### FEATURES-

- 250 factory programs including reverb, pitch delay, chorus, flange, phase, EQ, de-essing, compression, limiting, expansion, gain and stereo enhancement
- 20-bit A/D conversion, AES/EBU and S/PDIF digital I/O.
- "Wizard" help menus, 11-bit dithering tools.
- Tap and MIDI tempo modes.
- Single page parameter editing, 1 rack space.

### SONY

#### DPS-V77 2 Ch. Master Effects Processor



Sony's latest effects processor, the DPS-V77 yields excellent sonic quality combined with realtime control, a digital I/O and many more features that will put a smile on the face of any discerning studio engineer.

#### FEATURES-

- 198 preset & 198 user-definable programs.
- Control up to 6 parameters in realtime via MIDI information and an optional foot pedal.
- Use the AES/EBU & SPDIF digital I/O to link multiple V 77's together & when working with digital mixers.
- 10-key pad input
- Shuttle-ring equipped rotary encoder allows for quick patch changing.
- A noise gate circuit is provided ahead of the input for guitar players and other instrumentalists who want top quality effects without sacrificing tone.

### ALESIS

#### QuadraVerb 2 2 Ch. Master Effects Processor



Alesis' most powerful signal processor, the Q2 offers amazing audio fidelity in a versatile multi-effects unit. Great for professional & project studio owners, its large backlit display making parameter editing intuitive and quick.

#### FEATURES-

- 100 preset & 200 user-editable programs
- Digital 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.
- 4 seconds sampling, triggered pan, and surround sound encoding are built in.
- Selectable -10 dB and +10dB 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.

## PRO HEADPHONES



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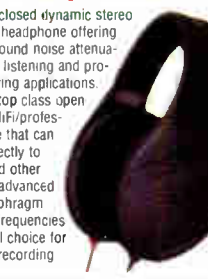


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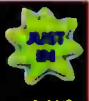
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**PDR1000TC Features**

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—FROM PAGE 22, TOM LEHRER

the *Chronicle* ran a major review of it. He considered recording for a major label but was told in no uncertain terms that his stuff was too controversial for a company that “sold refrigerators and other consumer items and wouldn’t want any protests.”

By 1959, he had enough material to do another album, *More of Tom Lehrer*, also on his own label. “The second record was a little bit longer. I went into RCA Studios in New York and booked some time. It was more professional. It took three hours, but we did it all in one evening. We did it in stereo—of course I can’t tell the difference. I suppose you can with earphones, but it’s still just a piano and me. We put out mono and stereo versions and charged a dollar more for the stereo, hoping the market would determine which one people liked better. They were smart enough to realize the extra dollar wasn’t getting them anything more, so the stereos have pretty much disappeared—I only sold 2,000 of them, vs. 72,000 of the mono.”

At the same time, he recorded a live version of the same set of songs, which he called *An Evening Wasted With Tom Lehrer*, so that his between-songs banter could be preserved for the ages. It was taped at Harvard’s Sanders Theater —“I wanted to make sure there was a friendly crowd. We did two nights, so I had a chance to make mistakes. A guy named Steve Fassett, who had a studio on Beacon Hill and did mostly classical music, recorded it. We edited it together. It was a change of pace for him, to put it mildly.”

*An Evening Wasted* was nominated for a Grammy, in the “comedy with music” category. “That category only existed for two years. There aren’t enough of those records any more to have a separate category from comedy without music. In fact, there weren’t even enough then. The winners were [piano/vocal duo] Jonathan and Darlene Edwards, who I think were worthy to beat me, but one of the other nominees was Alvin & The Chipmunks. I would have felt terrible if I had been beaten by Alvin & The Chipmunks.”

After the second record came out, he re-released the first album as a 12-inch (“At 22 minutes, it was probably the shortest 12-inch in history”) and toured New Zealand and Australia, where he also made some recordings. Some of those tapes ended up on *Tom*

*Lehrer Revisited*, a concert recording of the songs from the first album. “I think the engineer was drunk—at least I was told that later—and it sounded terrible. It was pure self-indulgence on my part to use those tapes, just to prove I was popular in Australia. The rest of that album was recorded at MIT’s Kresge Auditorium, where I played the same set. When Decca in England put out the record, they wouldn’t use the Australian tapes, but instead they used the MIT tapes for the whole record.”

Also during this period, two friends of Lehrer’s in Boston who had a record label called Unicorn decided it would be fun to record him with an orchestra. They brought in Richard Hayman to arrange and conduct four tunes, which they hoped would make it as hit sin-

**“Thirty-one years  
of hard work and  
discipline, and you,  
too, will get a Gold  
record.”**

**—Tom Lehrer**

gles. “It was very strange for me, because what do you do with your hands? I had never stood still before to sing. My hands were always busy, so I never had to worry about what I was doing. Now I had to put them in my pocket, or something, and it didn’t feel right. Like, do you sleep with your beard over the covers or under the covers?”

“I will never forget the day when Hayman came in. It was 10 in the morning, a regular union group of players, and they put the music in front of them, with no title, no lyrics, no nothing. They ran through it a few times, figuring it was just this pretty waltz, and Hayman said okay, so I went into the booth to record. The engineer said, ‘Poisoning Pigeons in the Park, take one,’ and the piano player said ‘Whaat?’ and literally fell off the bench. I’d never seen that happen before.

“They put out a single of ‘Poisoning Pigeons’ and the ‘Masochism Tango,’ and it sold eight or nine copies in the United States, because of course we couldn’t get airplay on it. Whereas in England, where they played it on the BBC, it sold quite well.” Dr. Demento, who has gained many fans for Lehrer

through his syndicated radio show, put one of the unreleased orchestral tracks on a 1995 collection, and all four appear on the new Rhino release (which has extensive liner notes by the good Doctor).

After his Down Under tour, Lehrer retired from performing (“I really don’t consider myself a performer by temperament”), but a few years later he found himself writing topical songs for a satirical news show on NBC-TV called *That Was the Week That Was*, and when the show went off the air, he decided to cut another album. He booked himself into the hungry nightclub in San Francisco for a few nights and played songs that had been on the show, like “Who’s Next?” and “National Brotherhood Week,” as well as some that weren’t, like “The Vatican Rag.” “I never even considered asking them to do that one,” he says.

His recording of the gig (“We did it in stereo, in a more professional way with a guy up in the attic twiddling dials”) was called *That Was the Year That Was*, and came out on Warner Bros.’ Reprise label. It sold 490,000 copies on LP, and it may represent another dubious record for Lehrer: It took 31 years to be certified Gold, which happened only after Reprise had issued the CD version. “Thirty-one years of hard work and discipline, and you, too, will get a Gold record,” he cracks. “It’s a fine example for our young people.”

It was at this point that Lehrer decided it was a good time to get out of the record business himself. “I used *TWITYTW* as the bait—to get it, Warner Bros. had to take my earlier records, too. I was tired of all that nonsense. I didn’t really have to do too much; it was all set up and flowing, but still it was a business.”

“They wanted to re-release my first album, but they said the sound wasn’t good enough and they wanted to re-record it, which, like an idiot, I did. First of all, I hadn’t played those songs in five years, so I had to listen to the piano and say, ‘What was I doing there?’ and try to imitate it. Also I changed some of the lyrics to bring them up to date, which was wrong. I changed the order of the songs, which some people objected to because they were used to hearing one song after the other. So that was a big mistake.” The Rhino release uses his original tape from the first album, hiss and all. It sounds fine.

“They reissued the *Evening Wasted With* album, and I went back and re-edited it, because there was too much

# QUAD

*Recording Studios*

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Sitting on beautiful Starke Lake, the studio boasts a Euphonix CS-2000 console, a Synclavier/16-trk. Post-Pro system, an MTR-90II, Genelec & HD-1 near-field monitors and a large assortment of outboard gear and microphones. Our 45x45-foot main room w/18-foot ceilings has a great sound and features a Yamaha C-7 piano. We also have a MIDI room for composition. Starke Lake and our parent company, Gettings Productions, has clients including Disney, Gloria Estefan, the Pointer Sisters and many more.



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applause and it was too loud. I remember doing that in Los Angeles. Of course you can't take out applause in the middle, you have to take it out at the peak, so I was cutting out all this wonderful stuff, and the engineer I was working with couldn't believe it. He said, 'Allan Sherman was here last week, and he made us put *in* applause.' So I said, 'He can have mine.'"

In 1990, Reprise put out the two live albums (one with bonus tracks of songs that Lehrer wrote for the children's TV show *The Electric Company*) and *That Was the Year That Was* on CD. "Originally, they had released the *Evening Wasted With* album in mono and also in that fake stereo. The stereo one was what was on the CD. After it came out, Dr. Demento and NPR told me, 'We don't use that CD on the air because the sound isn't so good. We use the English version instead.' This was news to me, because I had never listened to the original stereo LP, and so I went back to it, and there was this tremendous echo. Twenty-four years this record had been out, and I had never listened to it. So they said they would remaster the CD. They sent me the remaster and it sounded exactly the same, so I said try again. It took a long time, but eventually they sent me one that sounded fine. Apparently, what they did was take the mono and jazz it up with fake stereo, and when I complained they just went back to the mono, so now it sounds the way it used to sound."

But Lehrer's recording career was not quite over with. For this year's release, Rhino convinced him to go back into the studio one more time, to record "I Got It From Agnes," a breezy ditty about sexually transmitted disease that he had pulled out of his "trunk" and revised for the original production of *Tomfoolery*: "I was glad that *Tomfoolery* was all over by the time AIDS came in, because now you can't do the song. Most of the people who do *Tomfoolery* now leave it out, although I've heard that somebody does it as an AIDS awareness song—Be careful, don't do this."

"I had never recorded it, so they asked me if I would and I said, 'Okay, I'll try.' They booked several hours at a studio"—Sound Techniques, near Boston's Fenway Park—"and I said, 'I'm not going to need several hours,' but I did, because there's 64 tracks of this and that, and I decided to do the piano track separately from the vocal because it would be easier, and I would

have to practice too hard to do the piano and the voice simultaneously. But then I had to work to get them together on the different tracks, whereas before it was always automatic. They had to try different setups and different mixes, and it took forever, about three hours, to do this one lousy song." This from a man whose entire first LP took an hour.

Although Lehrer is now pushing 70, his voice retains that smug, sardonic grad-student quality of his earliest records. "I'm amazed it hasn't changed that much. Putting the new and old recordings side by side like that is pretty risky, but when I heard them, I thought, 'That's pretty good.'"

For me, the new release is a blast from my childhood, and the songs are

**"The main thing I'm pleased about is not that these are the greatest songs ever written, but that I'm not embarrassed by them."**

**—Tom Lehrer**

still wondrously witty. But is the legend proud of his legacy? Besides the obvious material comforts his youthful endeavors brought him, is Lehrer still happy with them artistically? "The main thing I'm pleased about when I listen to the first album is not that these are the greatest songs ever written, but that I'm not embarrassed by them. I paid for the initial recordings, and I could have recorded anything I wanted. I had a whole lot of songs then that today I would be embarrassed by. So I am pleased with the fact that I picked those 12 songs. There are a few topical things, little things, that I would change, but I'm okay with it."

Me too. There's a real person connected with that voice in my head, now. The legend lives, and is actually a very pleasant fellow. ■

*Paul D. Lehrman (no relation) has been dreaming about poisoning small animals since the age of seven. Now he knows why. A full transcript of his conversation with Tom Lehrer can be found on the online journal Signal-2Noise, at <http://s2n.org>.*

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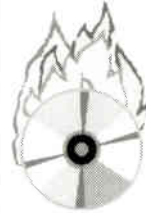
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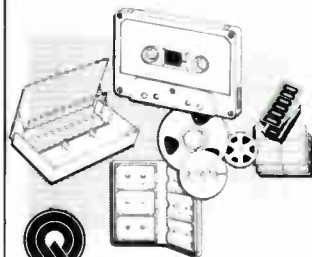
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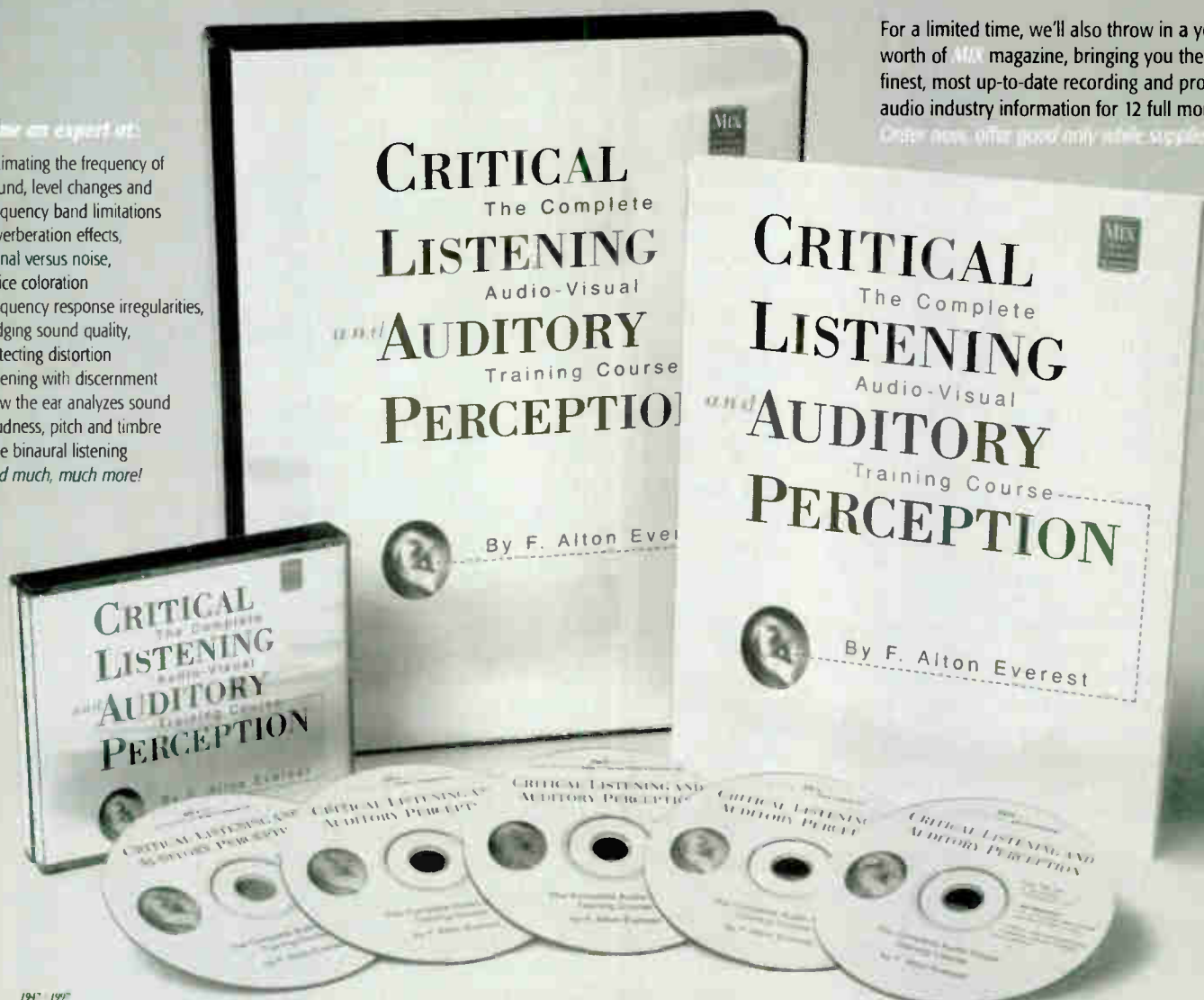
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# FEEDBACK

## "RETRO" REVISITED

Paul Lehman's assault on the "retro" thing (July and Aug. '97 *Mix*) hit the nail on the head and missed the mark. I agree wholeheartedly that the hit potential of a recorded performance is still almost entirely and, thankfully, in the hands of the performers.

We in this industry lose sight of that fact and place too much importance on our own contributions to the end product.

We are not the stars. Let us never forget that our ancestors wore lab coats and pocket protectors and that a relatively minute segment of the market buys a record because a particular individual engineered or produced it. Fewer still are those who buy a record because it was mixed through a Fairchild 670. At the risk of committing treason, I submit that a good engineer can make a good performance sound good on virtually any equipment.

So, should we write "retro" off as so much horse-hockey? True, there seem to be a lot of half-baked, knee-jerk products hitting the market, and companies that made their name in work-a-day solid-state products are starting to push tube gear out the door, me-too style. I'm also appalled when I see a Pultec CQP-1 with a price tag of up to \$5,000. It's a good unit that performs a useful function, but is it \$3,000 to \$4,000 better than a contemporary unit that performs a like function?

Is all this stuff inherently better than that contemporary solid-state technology? Absolutely not. There are some outstanding present-day solid-state designs; even ones employing integrated circuits! But there is merit in responsibly designed products utilizing retro technology. Tube and solid-state discrete Class A designs do sound different.

Even if the majority of the record-buying market doesn't respond directly to the use of a particular piece of vintage gear layered into a mix ("Hey, honey, they're playing our song, and you know, nothing gets me going like a U67 on a female vocal"), there is one very important person who does. The performer's perception of his or her own instrument or voice, as well as their perception of other

instruments in the mix, significantly affects what they play and how they play it.

The notion that the entire "retro" movement could be supplanted by a digital emulation program is short-sighted and impractical. There are software companies claiming all sorts of impressive things. My own computer is littered with programs that almost do what I want them to do, most of the time, and invariably take too long doing it. Real-time model emulation is still a number of years away from consumer market reality. If we accept this vision as the ultimate eventuality, everyone from the humblest blues guitar player on out will need a high-octane digital processor before they can play a lick, and a digital editing system that would impress the Pentagon before they can save that lick for posterity.

In the meantime, consumers need to be discerning. We should use the concepts founded in older technology and either take them someplace new or make them serve a useful function. In short, we should not only tip our hats to retro technology but embrace and advance it.

*Ken McKim  
Retrospec Inc.  
Phoenicia, N.Y.*

## TRADE SECRETS

I do not question Dominick Fontana's evaluation of the Digidesign Audiome-dia III card for the stated purposes (Aug. '97 *Mix*). However, having dealt with many AMIII and AMII cards in the field, in both audio workstations and nonlinear video products, I find it shameful that Digidesign thinks so little of their customers as to not provide adequate technical documentation about the card's characteristics.

This is a common problem in the video and audio worlds, which are becoming awash in products based on personal computers and sold by companies that do not have the technical history of established "pro" manufacturers. For me, as a designer and installer of high-end systems, this lack of documentation is an unending headache. It often forces me to spend hours with test equipment trying to figure out what is going on when things do not work as predicted.

Is this secretive stance by manufacturers necessary? I am not interested in stealing their designs. It would cost more to build an AMIII card than to buy one! I just want the information to use them in the best way possible.

*Eric Wenocur  
Lab Tech Systems  
Silver Spring, Md.*

## FOR THE RECORD

In Stephen St Croix's commentary on page 128 of the Special 20th Anniversary Issue (Sept. '97), he makes reference to the Lexicon Delta-T digital audio delay system, vintage 1974 or so. To set the record straight:

1. I contributed to the design but certainly did not design the Delta-T 102.

2. The audio was converted not to 8 bits but to a floating-point 10-bit mantissa and 2-bit exponent. I would say that it sounded quite good for its day—certainly not like an 8-bit representation.

*Chris Moore*

## THE ST.CROIX OF THE FUTURE

This letter is regarding Stephen St.Croix's predictions for the future in the *Mix* Special 20th Anniversary issue (Sept. '97). I believe that within the next seven to 12 years, regardless of technology, Stephen St.Croix will be sitting in a room, wearing goggles, a glove and some very comfy clothes, moving his head about and swatting at things with his hands, and cursing the rest of us for not wanting to "work this way."

This room will indeed be "climate controlled," though not necessarily air-conditioned. He will still contribute a column to *Mix* every month, and most of us will read it first (or second, so long as Hanson isn't in "Classic Tracks").

I cannot see how we can deviate from this prediction.

*Matt McCarthy  
Burlington, Vt.*

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We're not the only amp maker to advocate low-cut filters. But we ARE the only ones who don't charge extra or force you into a couple of pre-set cut-off frequencies. Our low cut filter's variable from 5Hz to 170Hz to fit your system's size.

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\*20Hz to 20kHz

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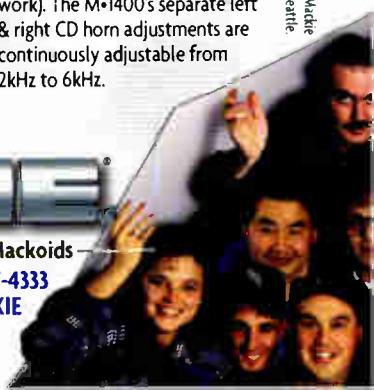
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