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POWERED MONITOR

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• ROLAND VG-8

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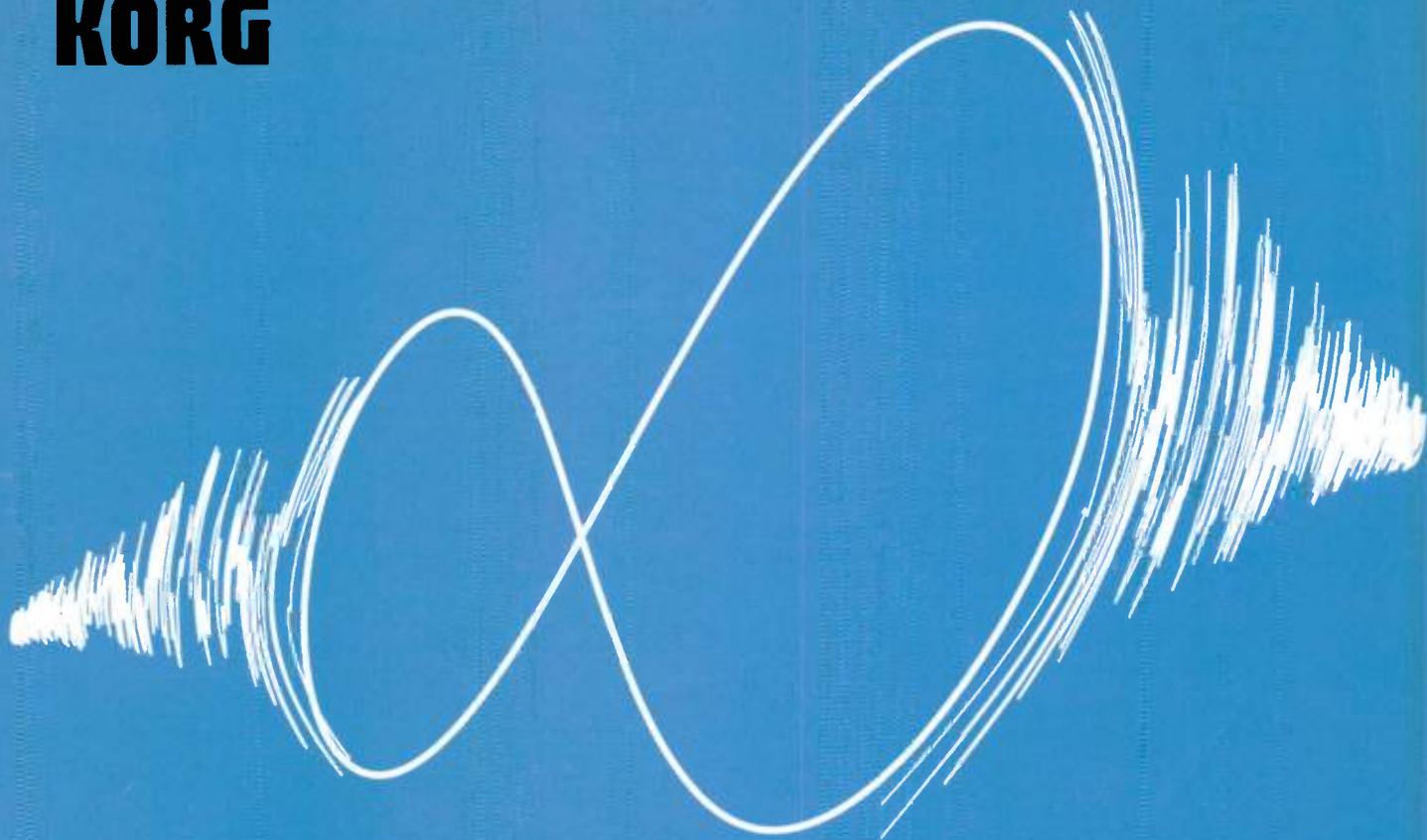


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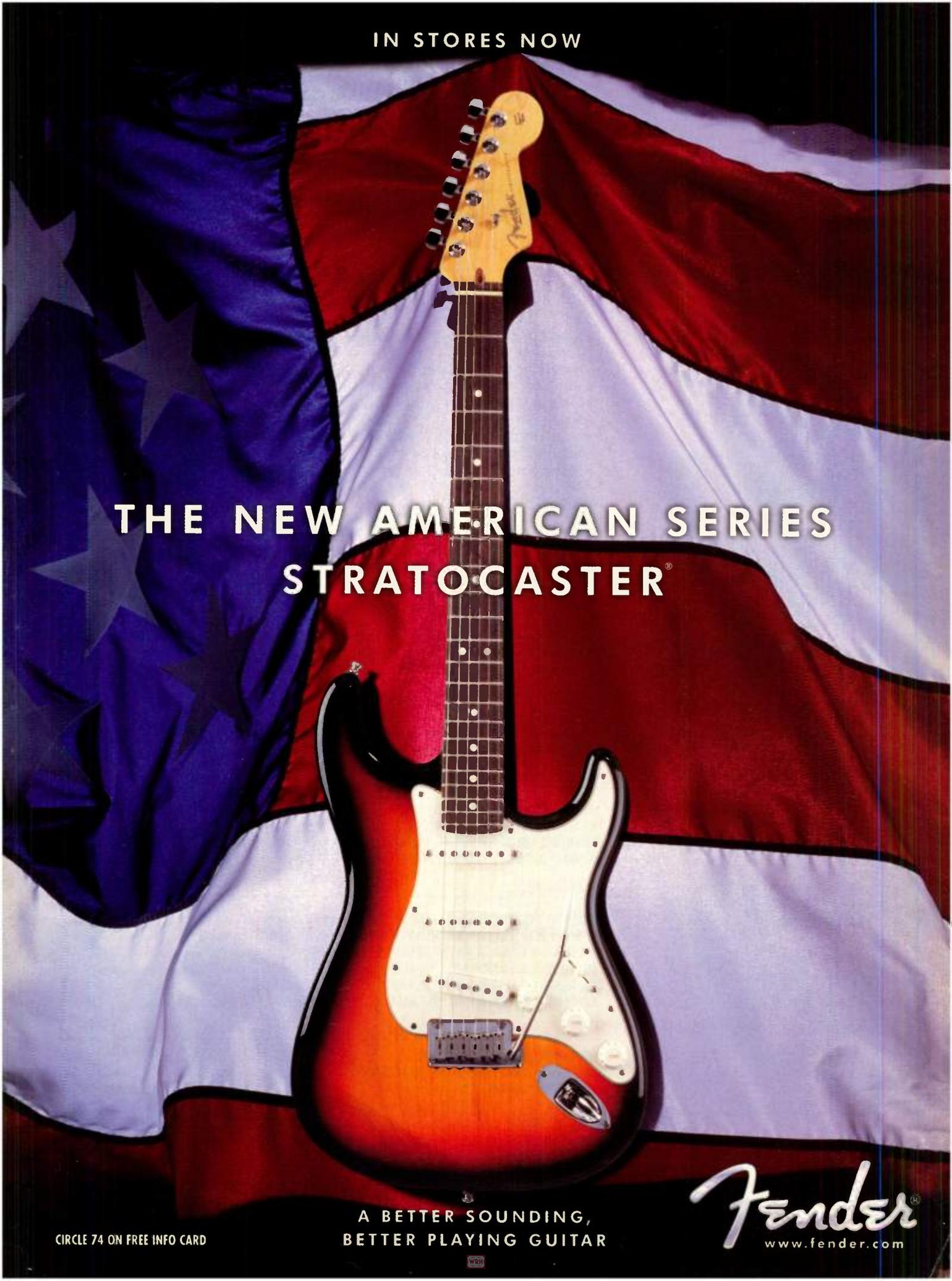
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VOLUME 11, ISSUE 8
AUGUST 2000



ON THE COVER:
Steve Vai sits in his
project studio.
Photo by lucky g/
William Hanes Inc.

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CIRCLE 45 ON FREE INFO CARD



The Expanding EQ Family

Aside from its amazingly handsome (and thoroughly modest) editor, one of EQ's strongest features has always been its stellar lineup of columnists and contributors. With the likes of esteemed industry guru Craig Anderton on tech duty, the FezGuys spinning Web wisdom, and the inimitable Mr. Bonzai searching out and redefining emerging and industry-leading engineers and producers, we've already got a line-up other magazines would give up black ink to call their own. Add to this fearsome trio the rarely shy Al Kooper holding forth on topics near and dear to project studio hearts, and engineer-without-peer Roger Nichols sharing his boundless experience, knowledge, and technical expertise, and you have a pantheon without equal. But are we satisfied? Nope, not us. We won't be happy until EQ offers more bang-per-page than you can possibly absorb in a month.

To that end, I'm proud to announce two new column additions to the book. First up is David Frangioni's "Studio Tech," which will appear on a bimonthly basis. David is a long-time contributor to EQ; most recently he reviewed the Lexicon 960L multichannel effects unit for the July issue. In addition to being a first-call product reviewer, David is the premier project-studio-builder-to-the-stars, having masterminded rooms for the members of Aerosmith as well as serving a veritable who's who of the music industry, including Chick Corea, Bryan Adams, The Rolling Stones, Elton John, and a litany of others. He currently heads up Audio One, a pro audio consulting firm, where he serves as chief guru and lead gear junky. David's "Studio Tech" column will cover all aspects of project studio design, construction, ergonomics, maintenance, and much, much more. In addition, we'll continue tapping David for product reviews and feature stories.

Jim Bordner, the author of our new "Guest Room Warrior" column, has also been making a name for himself of late. Over the past few issues, Jim has been penning articles for us dealing with the business side of project studio life. Jim's friendly approach and insightful discussions have proved so popular that we've locked in monthly space for him in the column section. "Guest Room Warrior" will deal with running your project studio as a business; look for columns on insurance, taxes, financing, billing, dealing with clients, and more. How qualified is Jim to write about these topics? Put it this way: For Jim, this isn't just regurgitated business school theory. After sitting for years on the other side of the glass as an ad agency copy writer/producer, he now lives the Guest Room Warrior life every day in his successful Gravity Music project studio, which he operates from — you guessed it — a converted guest room.

You'll be seeing Jim's byline on other things around here, too. Next month, for example, he'll be giving you the pro project studio perspective on the Summer NAMM show — just what does all that new gear really mean for those of us who are trying to make a living with our studios? Will it really help us work faster, better, and more efficiently? Tune in to Jim's report to find out.

Please join me in welcoming these newest members of the family. We're thrilled to have them join us here in EQ-land.

Think we've done all we can do to improve your favorite project recording magazine? Not by a long shot — we're just getting started! Watch out next issue when we pull the lid off of several announcements sure to send cascades of excitement through the audio world. And in October? Let's just say EQ as you know it is about to emerge reborn....

—Mitch Gallagher
gallagher@psn.com



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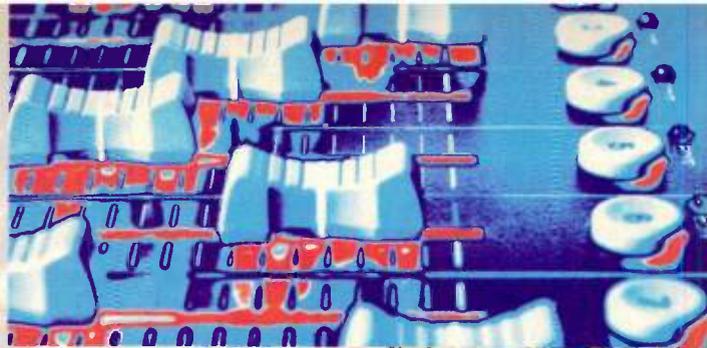
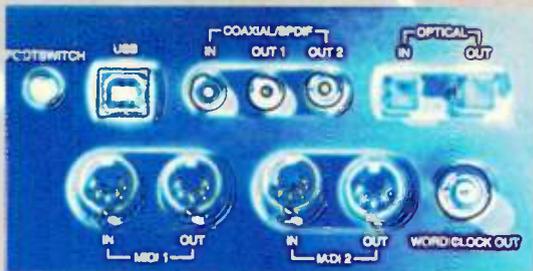


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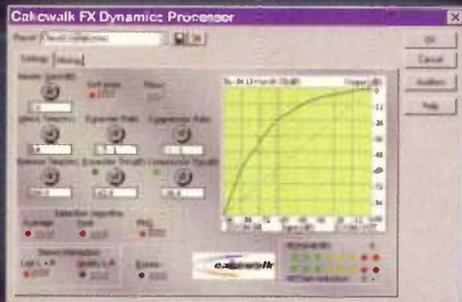
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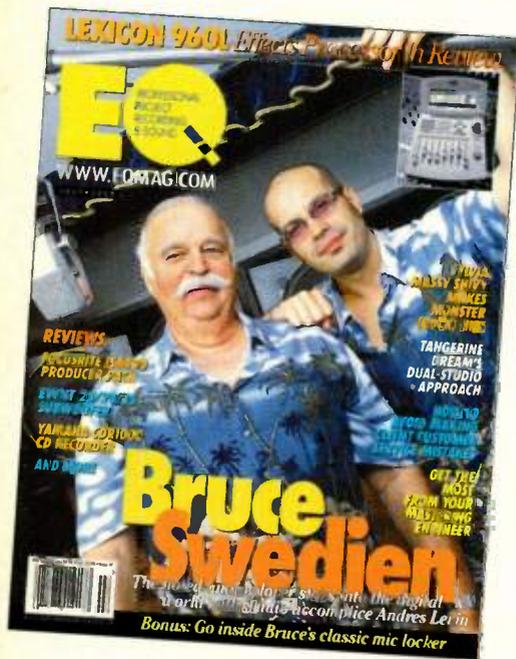
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USE IT, DON'T ABUSE IT

What a great article on Bruce Swedien! [July '00] I love this guy. I found his comments on the overuse of digital editing to be very interesting. Needless to say, I totally agree with his philosophy. I have seen too many producers and engineers say, "We'll fix it in 'Tools,'" or, "Let's do another take and I'll fix it by comping and editing." Sliding tracks, picking up hits or notes, blah, blah — *uchhh!*

What ever happened to talent? The reason producers and record companies insisted on using studio musicians during the '60s and '70s was because those people could get it in a few takes. Carol Kaye, Hal Blaine, Glen Campbell, and others are on tons of the records out of L.A. at that time.

Today's records don't sound as good because the talent isn't there. Now you have producers who say, "I'll fix it later." They do dozens of takes wearing out the talent and the recording staff and taking all the energy out of the music. I heard a story from a second engineer from a major room in the San Francisco area: The drummer from one of the biggest metal bands around was heard saying after a Pro Tools session, "That's the best drum track I never played!" Digital is great if the users don't go on a control freak power trip. I'm sorry, that's just how I feel. Oh, wait, I'm not sorry!

Kurt Foster
Kurt Foster Recordings
Ferment CA

ABOUT TIME

It's about time Sylvia [Massy Shivy, July '00] was featured in an article in a professional audio magazine! I don't personally know her and have never met her, but I would be honored to shake her hand and thank her for the "sound" that she creates.

I still use the Tool *Undertow* CD when I'm auditioning monitoring systems because of the clarity and power, openness, and punchiness that Sylvia achieved on that record. The sonic differences between the songs on the Powerman 5000 album that Sylvia produced and the rest are like night and day.

Whenever I see her name on the album credits, I expect nothing but a great sounding record. It's wonderful to finally see a picture of her and to learn a little bit more about her background and her recording technique.

Is there a way that you folks could forward this message to her or her management? In an industry littered with so many fallen idols, Sylvia Massy Shivy has always maintained her place on a pedestal, in my honest opinion.

Erick Labson
Universal Mastering Studios
North Hollywood, CA

DO IT

Like Nigel Russell, I would be interested in a Microphile collection on CD-ROM. Maybe it would even be possible to add some sound examples to each article? Many of the mics shown are unknown or very, very rare here in Holland, and I haven't got the faintest idea as to how they sound.

Jan Pronk
The Hague
Holland

POST IT

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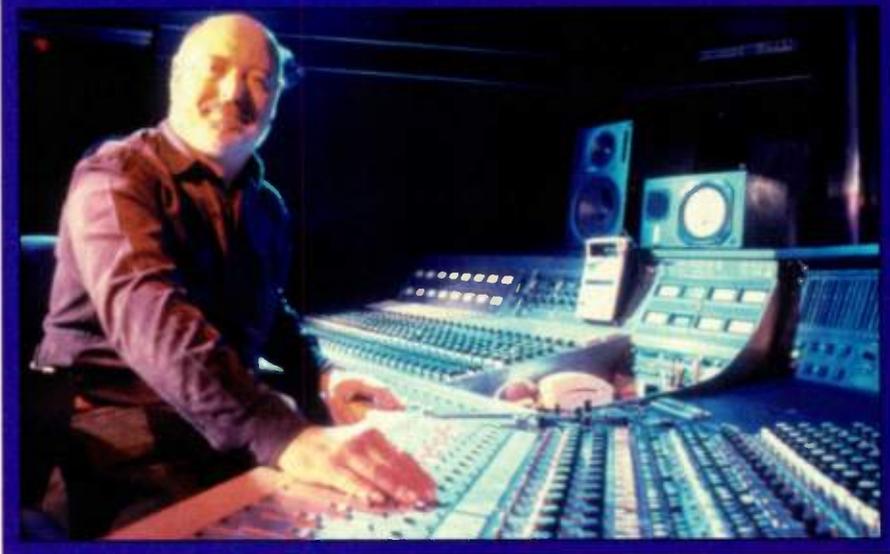
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NAME THAT STUDIO

Your article on Glen Kolotkin in the June '00 issue had some amazing photos by Eleonora Alberto, one of which was used on the cover. But just where *is* that beautiful vintage Neve console in the background? It's at Sorcerer Sound Studio B in New York City (www.sorcerersound.com). The console pictured was put together in 1985 by Alan Fierstein of Acoustilog Inc., who took a Neve 8038 from AIR Studios in London and an 8086 from A&R in New York and joined them together to form one custom 62-input console with GML automation.

Vera Beren
via fax



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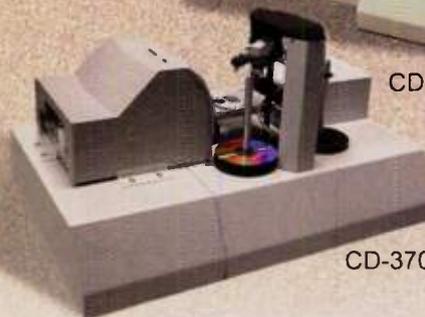
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HELP ME PLACE THE GUITARS

Does anyone have advice on placing guitars? The instruments are pretty straight-ahead rock: guitar, bass, drums, vocals, backup vocals. Maybe some last-minute percussion.

We doubled the guitar, which was a little too mellow, and then added a third track to get more bite. They all play the same thing, with embellishments here and there. The third track stays out of some verses. I was trying to make one big guitar sound. Then there are doubled lead guitar tracks.

So far I like the rhythms wide left/right and the third track pretty much center. On the lead tracks, I had him do things here and there. This breaks up the monotony and sounds good as "ear candy" panned wide. But it seems like there might be some competition going on.

There are lots of options. I could just pan the rhythms in when the leads come in. Or go with fewer guitars, but, in this case, more seems like more. —Curt

I would use an even number of rhythm guitar tracks (usually just two, lose the third one, and re-do your tracks properly with the final sounds you need) and pan them slightly inside of full-out left/right.

Watch your phase meter and listen for phase cancellations between the wide-panned guitars. If you have phase

problems, you may need to either re-record one of the tracks or slightly pan one or both of them in a little to avoid the guitars disappearing too much in mono. Check your guitar panning in mono, too; try looking for the best pan settings while listening in mono.

I would almost never pan a rhythm guitar straight up the middle because that space is usually already pretty crowded with the vocal, bass drum, and bass guitar, with the snare not far away.

Lead guitar panning is a matter of taste and context, but don't pan it the same as the rhythm guitars. I more often record the lead in stereo than doubled, but it depends on the context.

—Jon

Re-recording the guitars isn't an option at this point. I'm not noticing (surprisingly) any phase problems in mono. I'll try putting some of the other suggestion to use though, especially the panning-in-mono idea.

If you record your leads in stereo, then you must have your rhythms pulled in some, right? Or do you automate it so they only pan in for the lead? —Curt

I usually pan the alt-rhy or alt-lead parts at 11 or 1 o'clock. If you have phase problems and you are working on a DAW, grab the out-of-phase phrase from the guitar that is most out-of-time and shift it forwards/backwards until it is in phase. —Quin

DVD 5.1 MONITORING IN THE STUDIO

What's the best way to monitor discrete 5.1 from a DVD in the studio? Are there players with built-in discrete 5.1 outputs? Or do we need a decoder to get the discrete outputs? —Mr. Anxiety

You can get players with discrete outputs and built-in decoders. I just got a consumer Pioneer DV-626D, which has 5.1 analog outputs and decoders, as well as digital outs that can feed external decoders. I chose it because of its built-in DTS decoder (it also has Dolby decoding). Most of the players I checked out had DTS "support," but not DTS decoding. —Mitch Gallagher

Does this box have six analog outputs for the amps/speakers, or will we still need to go into a receiver to split it out six ways? —Mr. Anxiety

The model I mentioned can work either way. Using its internal decoders, it sends signal out six analog outputs. It also has digital outs for feeding an external decoder or receiver. I'm using it in my studio to feed six powered monitors (five monitors and a sub).

There are other models that have this capability as well; the main reason I went with this one is its DTS decoder. For what it's worth, I'm sure the audio would be better using an external high-end decoder

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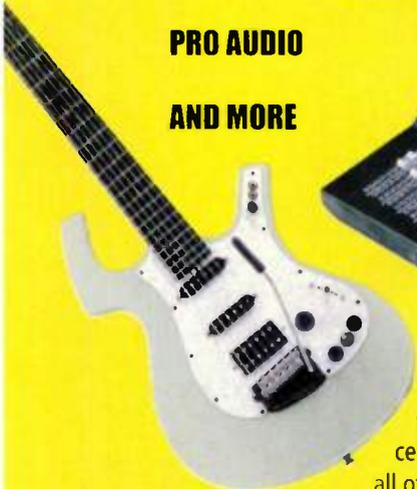
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rather than the decoder built-in to this \$400 player. But for a quick A-B reference solution, it works for me. —*Mitch Gallagher*

AIFF VERSUS SDII VERSUS WAV

I'm curious if there is any sound quality difference between the various computer audio file formats. If so, which do you prefer? —Onerecords

They are all exactly the same. The only difference is a header at the front of each file describing the sample rate, bit depth, and length of the sound. You can convert back and forth between them all day and end up with exactly what you started with. —*Roger Nichols*

RECORDING NATIVE AMERICAN DRUM GROUP?

I've been presented with a challenging project: To record a Native American drum group in the studio. There are six singers/drummers who'll be putting out lots of level playing and singing at the same time. The drum is about 3 feet by 10 inches and sits on a stand about 1 foot off the ground. Any suggestions or experience in these types of situations? I can especially use tips on mic placement and choice. The room will be a disadvantage as it is fairly small. —Tony

The first studio I worked at was on a reservation up in Canada...sounds like western plains native music? (Based on the drum size and setup....)

The best possible thing you can do is to find a way to go to a bigger room so that you can blend tight and distant mics. This type of music is, in my experience, all about having big vocals, and letting the overtones of the drums develop; a small room really works against that. I personally have gotten better results going to a rented hall or church that sounds good and recording direct to two-track or eight-track than using the studio's small room/24-track setup. I wouldn't worry about isolation, just try to capture the raw power that you experience sitting next to those guys when they play live. —*Steve*

The group is kind of "pan-tribal," but will be doing western plains styles. What was your configuration for your close mics? I really would like to get the power of the drum as opposed to just

the attack — maybe I should mic the bottom of the drum, too? —*Tony*

The studio I did that stuff at was kind of lo-fi, but I got pretty good results on the bottom end by sliding a Shure SM91 under the drum right on the floor. I have also used AKG C414's, but it can be a b*tch placing them depending on the height of the drum from the floor. Then I boomed in a top mic over the center of the drum about 12 inches off the head to get the attack and put a couple of room mics up about 12-14 feet away at head level. But that really depends on the room. I was able to use the room mics for the chanting, since the boys were pretty loud and the room worked, then I just went back to the studio and overdubbed the solo voices so that we had some control. I put the solo fellow in another room and gave the band open-ear headphones so he could direct them and not risk screwing up the mix to DAT. Worked great.

Hope all this helps. Funny, I always thought that this experience wouldn't really come in handy to anyone else. —*Steve*

COMPRESSION AND EQ UP FRONT?

Do you normally EQ and compress a vocal going to tape, or record flat and EQ and compress afterward, when you mix? What's the best method? —R. Stroope

I use a little bit of compression on the vocal during recording, but just the smallest amount (1 to 2 dB at 2:1). Some singers, such as Ricki Lee Jones and Rosanne Cash, don't want any compression during recording because it hampers their own natural dynamic control. I use a little bit more compression on background vocals (3 to 6 dB at 3:1).

I use some additional compression during the mix. The amount varies. Whatever it takes to make the vocal sound full, but not compressed. —*Roger Nichols*

ASK US

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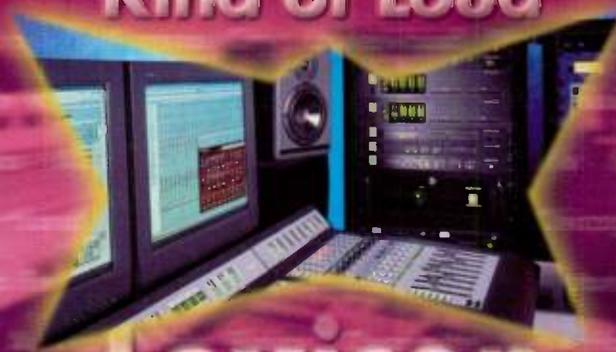
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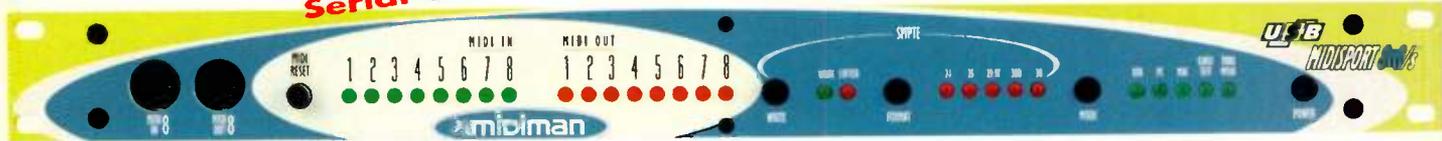
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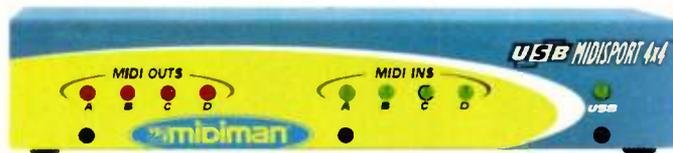
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EQ NEWS

AUGUST • 2000

LOS ANGELES TO BE "SURROUNDED BY SOUND" DURING 109TH AES CONVENTION

Themed "Surrounded by Sound," the 109th Audio Engineering Society (AES) convention is slated to take place September 22–25, 2000 at the Los Angeles Convention Center. As part of a bevy of announcements, AES executive director Roger Furness has announced the formation of the Convention Committee. "It will have been four years since our last L.A. convention, and we are looking forward to a truly stellar event," says Furness.

AES Convention Committees comprise busy industry professionals who generously devote a substantial chunk of their time to make the conventions resonate with meaningful events and programs. This huge effort is supported by a professional AES management team led by Furness and director of convention management, Chris Plunkett. "Our mandate is to orchestrate the logistical complexities of the event," Plunkett adds.

The committee consists of convention co-chairs: Roy Pritts and Ron Streicher; papers co-chairs: Marshall Buck and Eric Benjamin; workshop co-chairs: Van Webster and Valerie Tyler; technical tours chair: Richard Burden.

In other AES news, the September

22nd Opening Ceremonies for the Convention will feature the AES Awards Presentation and a keynote address by legendary jazz musician/composer Herbie Hancock. Hancock will be discussing his experiences in 5.1 surround sound production.

In keeping with its "Surrounded by Sound" theme, the 109th AES Convention is featuring paper sessions on multichannel techniques and spatial perception, highlighting two key areas of surround sound audio production. The convention will include 18 paper sessions with more than 100 presentations.

"The technical paper sessions emphasize the tremendous significance each area of audio has in the advancement of the industry as a whole," says papers co-chair Buck. "With the emergence of computer technology, today's research yields endless possibilities for the continuing evolution of audio technology."

Noting some of the challenges existing in the areas of loudspeakers and automotive audio, the paper sessions will include tutorials on both. One example, "The Acoustics and Psychoacoustics of

Loudspeakers and Rooms — The Stereo Past and Multichannel Future," by Floyd E. Toole, will feature a review of the factors involved in order for the audio industry to face the challenges of multichannel recording and reproduction.

The 109th AES Convention will also host a wide range of events designed to promote and further education in the professional audio industry. "Education is a vital component of every AES Convention, and the programs chosen for the 109th AES are particularly dynamic and informative," says Roy Pritts, 109th AES Convention co-chair.

Events will include: Student Delegate Assembly (SDA; two meetings), "Classical" and "Jazz/Pop" Recording Competitions, Poster Session, Education Fair, and Jobs Forum.

Special events have also been planned for the Convention, including a workshop titled "Hearing Protection Solutions for Music Performance and Audio Production Professionals." It was developed to familiarize music and audio production professionals with methods for reducing sound exposure. Also planned are a panel discussion titled "Mixing Surround Live," an event titled "Multichannel Audio Over the Internet 2," a workshop titled "AES31-3 Digital Audio File Interchange Format," and a moderated discussion titled "An Afternoon With Dr. Sidney Harman," who is founder of Harman-Kardon, Inc.

This year's AES Convention will feature Dr. Alan C. Kay as the distinguished lecturer for the Richard C. Heyser Memorial Lecture Series. Dr. Kay will discuss the computer revolution and the developments that promise to ensue with its onset.

AES special events chair, Annemarie Staepelaere, has developed the Platinum Record Artists and Producers Series, and has announced several exciting roundtable discussions, including a Platinum Producer panel. Roger Furness, AES executive director, reports these events will collectively explore critical issues within the professional recording industry.

"Beyond the Board: Mysteries of the Artist-Producer Relationship", chaired by Robert L. Doerschuk, senior editor of Harmony Central, is slated for Friday, September 22, and will analyze the intricate relationship between the artist and the producer. The Platinum Producers Panel will spotlight the career of renowned producer/engineer Al Schmitt. "Behind The Glass: Platinum Producers" will present an all-star cast of top American and British producers comparing and contrasting their working techniques and providing real-world anecdotes about creating chart-topping hits.



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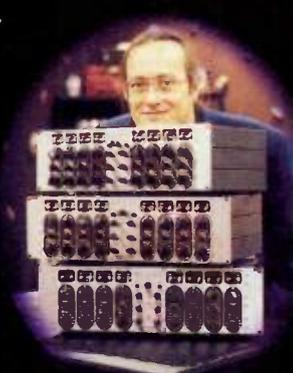
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DTS ANNOUNCES DTS-ES DISCRETE 6.1 AUDIO STANDARD, DENON DEBUTS HOME VERSION

DTS formally announced a new program for the implementation of the DTS-ES Extended Surround Format. The DTS-ES program includes the introduction of the new DTS-ES Discrete 6.1 format, which employs a new, proprietary technology for the playback of discrete, 6.1-channel content from DVDs and CDs. This latest innovation from DTS elevates the performance standard for playback of the DTS 6.1-channel Extended Surround format introduced in motion picture theaters last year. Content mixed especially for DTS-ES Discrete 6.1 will be available later this summer.

The new Denon AVR-5800 A/V surround receiver is the world's first audio component to feature DTS-ES Discrete 6.1 decoding. It is powered by two Analog Devices SHARC 32-bit floating-point DSP processors — the most advanced DSP devices on the market — along with 16 of Analog Devices' reference AD-1853 24-bit/192 kHz DACs. This is the first DSP implementation to support the DTS-ES program. The new AVR-5800 A/V receiver also features DTS-ES Matrix 6.1, DTS Neo:6, Dolby Digital, THX Surround EX, and Dolby Pro Logic decoding, as well as THX 5.1 and 4.0 post-processing, a variety of additional DSP modes, and stereo audio.

David Birch Jones, Denon marketing manager notes: "We are extremely proud to be the first-ever manufacturer to offer a product with DTS-ES Discrete 6.1 decoding capability. Thanks to the

inclusion of DTS-ES Discrete 6.1 along with DTS-ES Matrix 6.1 and DTS Neo:6 decoding in our new flagship AVR-5800 A/V receiver, Denon is able to clearly distinguish itself as the standard-setter in high-end audio/video receiver design and performance."

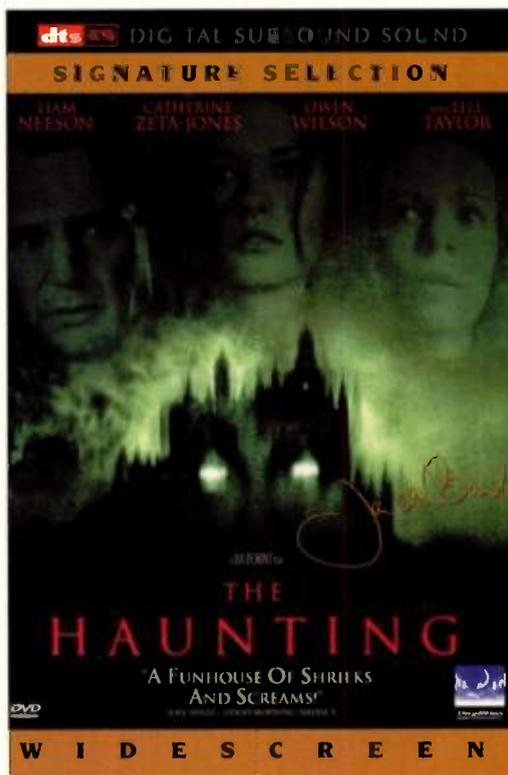
"Analog Devices' Melody DTS-ES Extended Surround decoder powered by our 32-bit SHARC DSP will help expand the

market for this new playback format since it delivers the sound quality of the recording studio combined with the listening experience of the movie theater," says Mike Haidar, general manager, Software & Systems Technology Division, Analog Devices, Inc. "We have jointly engineered this decoder with DTS and Denon, combined it with the industry's highest-performance audio DAC, the AD1853, and included the ability to decode all legacy DTS soundtracks."

In addition to DTS-ES Discrete 6.1 decoding, the new DTS-ES program includes the introduction of the DTS-ES Matrix 6.1 surround decoding format, which offers backward compatibility with existing ES matrix-encoded content, and DTS Neo:6, which is a matrix technology that derives up to 6.1-channel playback from conventional stereo program material.

The creative community is supportive of DTS-ES Discrete 6.1, and new content will be available on both DVD and CD this summer. "It has been a pleasure to work with companies and artists who are willing to innovate new performance standards for a format that was introduced just last year," states Ross Hering, vice president of marketing for DTS Professional Audio. "We anticipate positive consumer response to this enhanced entertainment experience."

For more information, contact DTS at 818-706-3525 or visit them online at www.dtonline.com.



SOUNDCRAFT INAUGURATES GOING LIVE! SEMINAR IN U.S.

Soundcraft is set to host the first North American Going Live! Seminar at the Nashville Soundcheck rehearsal facility on November 4 and 5. This unique event combines training in sound engineering techniques with opportunities for close-up equipment assessment. The tips and techniques come from leading sound professionals usually found on the international touring circuit. The equipment comes from Soundcraft and fellow members of the Harman International group of companies: AKG, BSS, Lexicon, and Spirit, among others.

The Going Live! Seminar operates on a non-partisan and non-profit basis. Soundcraft "sponsors" the event in terms of organization, provision of equipment, and underwriting its costs, but it is not a sales exercise. Tutors are independent sound engineers or product specialists, not salesmen. So far, the instructors for the U.S. event include "Big" Mick Hughes and Robert "Cubby" Colby, with a number of other high-profile front-of-house and monitor

engineers currently making commitments to help with the program. Hughes is best known as Metallica's long-time front-of-house mixer, as well as for his live work with Ozzy Osbourne and Def Leopard prior to that. Colby's resume is equally impressive, having run front-of-house for acts such as Phil Collins, Janet Jackson, The Cure, Bob Seger, and Genesis, in addition to serving as the Grammy Awards' house engineer for the last two years.

Only 100 places are available on the weekend course, which runs Saturday morning through Sunday early evening, so interested participants are encouraged to register early.

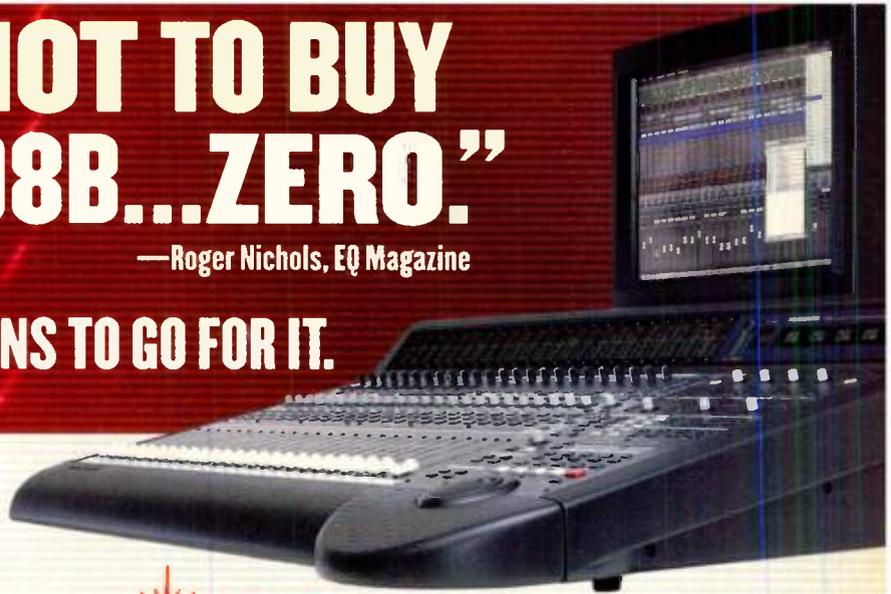
Tickets are \$350 per person (plus taxes), with a \$50 discount for students. This fee includes lunch and coffee throughout the course, as well as extensive printed information and course notes.

For more information and to reserve a spot, contact Soundcraft USA at 615-360-0462.

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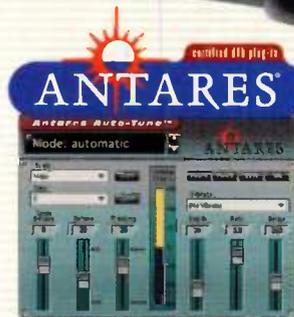


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3 1999 TEC AWARD WINNER!



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

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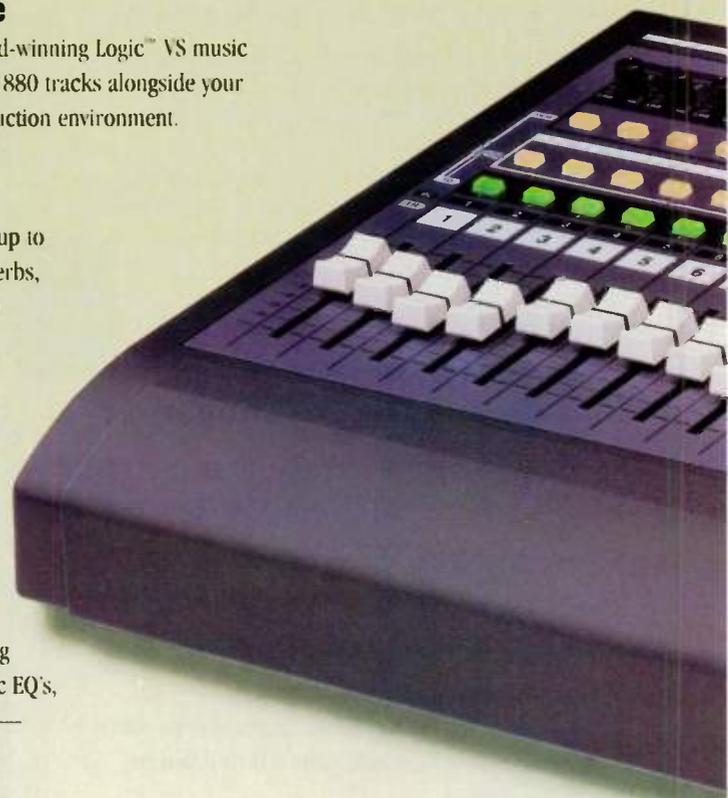
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18 TRACKS

The New Measure of Recording Power

When it comes down to it, you can never have enough tracks... or effects... or convenience... or power. That's the thinking behind the new Roland VS-1880 Digital Studio Workstation. It's the ultimate integrated recording studio from the company that revolutionized personal hard disk recording. Any other studio, quite frankly, doesn't measure up.



Roland

VS-1880 24-bit Digital Studio Workstation

Call 800-386-7575, ext. 2595 for your \$5.00 Demo Video. Faxback Information: (323) 890-3780 doc.# 10418 www.rolandus.com

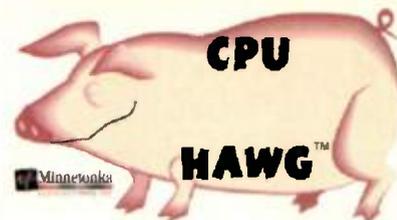
WRB

CIRCLE 34 ON FREE INFO CARD

EQ PRODUCT VIEWS

HOW'S YOUR CPU?

If you've ever run a recording project with a large number of plug-ins, you've probably experienced running out of CPU power. When the CPU runs low, the audio starts skipping. Minnetonka Audio Software's CPU HAWG can find out exactly how much CPU power plug-ins are using. The CPU HAWG is easy to use — just select from the list of DirectX plug-ins installed on your system and hit the "Test" button. The CPU HAWG displays the percentage of available CPU that is used by that plug-in. You can also test the performance of your plug-ins using different file formats. You can choose 16- and 24-bit audio, or 32-bit floating point, as well as different sample rates up to 192 kHz in mono or stereo. Best of all, the CPU HAWG is a free download. For more information, call Minnetonka Audio Software at 612-449-6481 or visit www.minnetonkaaudio.com. Circle EQ free lit. #110.

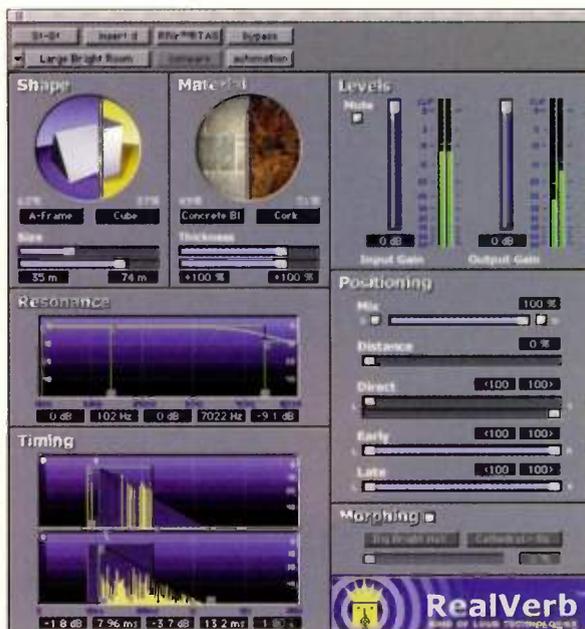


MIXER MAKEOVER

The popular turntablist mixers from Rane have received a smooth facelift. Now the TTM 54i and the Mojo TTM 52i performance mixers have a smooth Lexan faceplate with graphics that will never wear off. The new transform switches have a contoured paddle that is gentle on the fingers for faster, more comfortable cutting. The faders on the TTM's have been relocated for a more ergonomic layout. The TTM 54i performance mixer is designed for the most demanding DJ, featuring a precision active crossover, front-panel "hamster" reversal and switchable contour controls, assignable effects loop, and more. The Mojo TTM 52i features a reduced feature set as compared to the TTM 54i, offering a more cost-effective solution for DJs. For more information, call Rane at 425-355-6000 or visit www.rane.com. Circle EQ free lit. #111.

KIND OF CREATIVE

Kind of Loud Technologies has released RealVerb stereo reverbation plug-ins for Pro Tools TDM and Digidesign's 001 format, RTAS. RealVerb is a high-quality reverb with the ability to morph room shape, size, and texture, giving users creative control over their sound. The morphing and blending tools function in real-time, with no pops, clicks, or distortion. In addition, Kind of Loud, specialists in surround sound software, applied their patented spatial technology to RealVerb, which allows users to pan within the stereo spectrum. RealVerb/RTAS is available for \$295; RealVerb/TDM is \$695. For more information, visit www.kindofloud.com. Circle EQ free lit. #112.



The Revolutionary Way to Mix, Master and Make CDs



MASTERLINK™ ML-9600 HIGH-RESOLUTION MASTER DISK RECORDER

The new MasterLink™ ML-9600 high-resolution recorder is much more than just a mixdown deck or CD burner. It's a visionary product that will completely change your perspective on two-track audio, and redefine the way you master your mixes.

Combining hard disk recording, DSP and the world's most advanced CD-R format, MasterLink offers you an all-in-one system for creating polished, fully mastered CDs. And with its unique high-resolution capabilities, MasterLink makes it easy to deliver and archive two-track mixes – up to 24-bit/96kHz – using convenient, inexpensive CD-Rs.

Fully compatible with standard CD and AIFF audio formats of today, it delivers the advanced digital quality you'll be using in the years ahead. But why wait? Visit your Alesis dealer today and join the MasterLink revolution.

Hard Disk Recording



Record your two-track mixes onto MasterLink's internal hard drive with your choice of digital resolution...from standard 16 bit/44.1kHz resolution all the way up to 24-bit/96kHz.

Custom Playlists



Create 16 different playlists containing up to 99 songs each...with full control of song order, track gain, fades and more.

Dynamics Processing



Use MasterLink's compression, limiting and normalization to optimize each song's dynamics.

Professional Equalization



Fine-tune each song with MasterLink's 3-band, fully parametric EQ.

CD Creation and Playback



Record your master to CD-R. MasterLink creates standard 16-bit/44.1kHz Red Book CDs as well as AIFF-compatible hi-res discs up to 24-bit/96kHz.

EQ

PRODUCT VIEWS

STAND OUT

Quik-Lok has introduced the new BS-300 height-adjustable nearfield monitor/loudspeaker stand. The BS-300 offers the project studio enthusiast, pro studio professional — as well as the home audiophile — solid, steel-welded support for their expensive nearfield speaker investment. The BS-300 features four locking height adjustment positions that permit the height to be set at 27.5 inches (70 cm), 31.5 inches (80 cm), 35.5 inches (90 cm), and 39.5 inches (100 cm). The BS-300 also features a large format, 17.7-inch (45 cm) per-side triangular base. The large triangular base includes retractable carpet spikes and rubber feet. The stand will support loudspeakers up to 125 pounds, and retails for \$79.95 each. For more information, call Music Industries Corp. at 516-352-4110 or visit www.musicindustries.com or www.quiklok.com. Circle EQ free lit. #116.



SULTRY SYNTHESIZING

BitHeadz, Inc. announced the launch of the *Tubes, Lines & Transistors* sample library in native Unity DS-1 format. In cooperation with respected keyboard player and sound designer David Kerzner, BitHeadz has brought together a wide variety of keyboard and synthesizer samples that utilize the BitHeadz Unity DS-1 sample engine to bring realistic organ, electric piano, and classic analog synth sounds to your computer. The *Tubes, Lines & Transistors* sample library includes over 300 MB of content ranging from the classic sounds of the Hammond B3 to samples of vintage Oberheim, Moog, Sequential, and Arp synthesizers. The sample programs contain a wide range of different filter settings, modulation routings, and effects. *Tubes, Lines & Transistors* (\$199) supports ASIO, Direct I/O, DirectConnect, MAS 2.0, ReWire, Sound Manager, and DirectSound, and is optimized for Apple's G4 and Intel's Pentium III processors. For more information, call BitHeadz, Inc. at 831-465-9898 or visit www.bitheadz.com. Circle EQ free lit. #117.

ON TOUR WITH HAFLER

Hafler has introduced to the systems contractor market two live sound (touring) amplifiers; this new amplifier series is one of the three new amp series that are all based on a platform referred to as the C-Series. Live sound is the basic platform, with signal processing available, and digital amplifier control circuitry down the road. The 300- and 600-watt-per-channel live sound units (the SR2300 and SR2600, respectively) are currently shipping; the 1,200 watt unit will follow later in the year, and will boast Hafler's Class D technologies. For more information, call Hafler at 480-967-3565 or visit www.hafler.com. Circle EQ free lit. #118.



NOW SHIPPING!

Record 24 tracks of 24-bit audio*. Edit from the front panel or on your computer. Interface with your DAW system. Backup to your favorite media. Make records. Be famous. Have fun.

With the TASCAM MX-2424™ 24-Track Hard Disk Recorder/Editor, you might get more than you expected. Though it's hard to imagine getting much more from a recording system. Any system.

Start with 24 tracks of 24-bit/48kHz digital audio. Take your choice of 24-bit analog, TDF, ADAT® or AES/EBU optional I/O modules...digital and analog interfacing available simultaneously, of course. Use the front-panel drive bay and fast/wide SCSI port to extend recording time with external hard drives and create backups with tape drives and DVD-RAM. Get file format and drive compatibility with your favorite DAW system on Mac® and PC.

Time to edit? No computer required. All the controls you need are right there on the front panel. Or get visual editing and transport control with the included ViewNet MX™ graphic user interfacing software. Need more tracks? Chain up to 32 machines for a huge integrated system with true single sample accuracy.

Surprisingly affordable, incredibly powerful, feature-packed and (most importantly) unbelievably great sounding. And (alas), far too cool to give you everything you need to know on this page. So go to www.tascam.com for the whole story. Because the more you find out about the MX-2424, the more likely you'll be to, well, uh...buy one. Available today at your authorized TASCAM dealer.

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



The MX-2424 (shown with optional IF-AE24 analog I/O and IF-AE24 AES/EBU multichannel digital I/O) features built-in SMPTE Sync, MIDI Time Code, MIDI Clock, Video Sync, stereo AES/EBU and S/PDIF ports and much more.

* 12 tracks of 96kHz recording available later this year

TEAC America, Inc., 7733 Telegraph Road, Montebello, CA 90640
323-726-0303 www.tascam.com

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TASCAM
a whole world of recording

CIRCLE 52 ON FREE INFO CARD

EQ PRODUCT VIEWS

TOO COOL

Syntrillium Software has released the newest member of the Cool Edit 2000 family of products: the Pro EQ plug-in. Cool Edit 2000 (\$69) is a professional audio recording and editing application for Windows 9X, Windows NT, and Windows 2000. The Pro EQ plug-in adds equalization and filtering tools to Cool Edit 2000. With it, Cool Edit users can apply a subtle or powerful frequency bias with the 10-, 20-, or 30-band graphic equalizer. They can also boost or cut up to five bands with adjustable widths and center frequencies with the parametric equalizer, take out a hum or tone with the Notch Filter, and apply low-pass, high-pass, and other sophisticated IIR filters with the Scientific Filters. For more information, call Syntrillium Software at 480-941-4327 or visit www.syntrillium.com. Circle EQ free lit. #119.



REAL-TIME MANIA

The first portable, stand-alone 8X CD-recordable system that allows live event direct recording and analog-to-digital conversion was announced by Microboards Technology's Pro Audio Division. AudioWrite Pro 8 is priced at \$499. AudioWrite Pro 8 enables direct connection to analog audio sources, including tape decks, LP players, or stereo consoles. Users will now be able to record live events or dictate in real time (1X) directly to the system on standard 74- or 80-minute media. Customized audio CDs from MP3 files downloaded from the Internet also can be created using the PlayWrite MP3 software. AudioWrite Pro 8 Suite for Windows includes: Sonic Foundry's CD Architect and XP, Hot Burn, PlayWrite MP3

software, a PCI SCSI card with cable, one RCA cable, and two Microboards blank CD-Rs. AudioWrite Pro 8 Suite for Mac includes: Adaptec Toast Jam, Adaptec Toast, one RCA cable, and two Microboards blank CD-Rs. For more information, call Microboards Technology at 952-556-1600 or visit www.microboards.com. Circle EQ free lit. #120.



HHB DISTRIBUTES ASHDOWN

Exclusively distributed by HHB in North and South America, Ashdown Engineering Reso 1 and 2 acoustic amplifiers are housed in chrome-plated cabinets, and share all the features of their "Radiator" counterparts. For the Reso 1, that means a 60-watt bridged power section, a custom eight-inch speaker incorporating a dual-tweeter array and preamp facilities including a switchable input for active and piezo pickups, a notch filter to tune out feedback, bass and treble controls, an Alesis digital reverb, and a balanced XLR DI output. The Reso 2 adds a more powerful 120-watt power section and a host of other upgrades. There is also a third new Ashdown acoustic amplifier, the AAH212H, which combines a 120-watt bridge mode power section with a custom-designed 12-inch speaker and HF horn in a wedge-style cabinet. For more information, call HHB Communications USA at 310-319-1111 or visit www.hhb.co.uk. Circle EQ free lit. #121.

DMX-R100

THE DIGITAL MIXER WITH AN OXFORD EDUCATION

Full input module with a knob for every function



5.1 surround mixing and monitoring



96/24
96 kHz 24-bit capable

Introducing the Sony DMX-R100: a small-format digital mixer inspired by our Oxford console, considered by many industry leaders as the most advanced digital mixing system ever developed.

How does the DMX-R100 work? The way you want it to. You have a full input module with a knob for every function. Equalization and dynamics can be adjusted simultaneously. Your hand goes intuitively to the right knob. Your mixing session goes faster. You can concentrate on the mix, not on the technology.

The R100 can memorize your automation moves the moment you touch the high-resolution touch-screen fader. Don't tell the mixer to change modes. Don't think about it at all. Just touch it.

A color touch-screen is built into the control surface. Use the built-in router to assign inputs to faders. Select buses, sends,

and directs to analog and digital outputs. View a complete input module or zoom in on the EQ and Dynamics sections.

Machine control with 9-pin and MMC interface is standard.

Right out of the box, the R100 is smart enough to make you more productive. And open up opportunities for working in new high-resolution formats, without expensive upgrades or difficult learning curves. Which makes it an educated choice for audio professionals everywhere.

Call today and we'll send you a brochure and VHS demo tape.



1-800-472-SONY ext. DMX
www.sony.com/proaudio

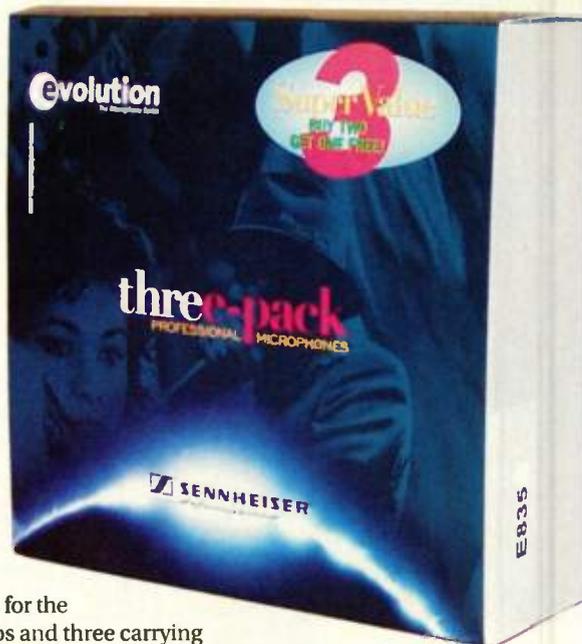
SONY

EQ

PRODUCT VIEWS

PACK IT UP

Sennheiser has made buying a microphone package simpler with its growing line of Evolution Microphone Promotional Packs. These off-the-shelf, everything-you-need-in-a-box packs allow musicians to buy the Evolution microphone they want and get all the related accessories they need—all in a single, cost-effective package. Sennheiser first introduced the Promo Packs with the highly successful e-Pack, consisting of a handheld Evolution vocal mic, 21-foot cable, and K&M tripod stand. Based on that unit's popularity, the company has since introduced three variations, including the Drum Pack (three configurations of Evolution drum mics and mounting accessories); the Three-Pack (three Evolution mics for the price of two, including three mic clips and three carrying pouches); and the Kick Pack (an Evolution e 602 bass drum microphone, 21-foot cable, and weighted bass mic stand). For more information, call Sennheiser at 860-434-9190 or visit www.sennheiserusa.com. Circle EQ free lit. #114.



AN ALL-AROUND PERFORMER

Studiomaster has launched a new compact, rackmountable mixer, the Logic Twelve (LC-12). The LC-12 features eight input channels (four mono mic/line and four stereo line channels) plus two auxiliary sends per channel, PFL bus, and fully calibrated rotary faders. All mono line and stereo line inputs feature Studiomaster's new "Hi Z Plus" circuitry, which improves audio quality from a wide range of equipment and instruments, from CD players to electric guitars. The LC-12 also features internal modular construction (individual PCB cards), a fully regulated, internal power supply, and rugged all-steel construction. Retail price is \$359.95. For more information, call Studiomaster at 800-878-7883 or visit www.studiomaster.com. Circle EQ free lit. #113.

LEVEL-HEADED AMP

Universal Audio is shipping its authentic reproduction of the revered Teletronix LA-2A leveling amplifier. The Teletronix LA-2A is the second product in the Universal Audio Classics product line, following the release of the 1176 limiting amplifier earlier this year. Every LA-2A is hand built, each turret board hand wired. Painstaking care has been taken to source and qualify authentic components to ensure that the new LA-2A delivers the signature sound that recording engineers have come to expect. Available through Universal Audio's worldwide reseller network, the LA-2A sells for \$3495. The Teletronix is an electro-optical compressor, and has been well-loved by recording professionals since its introduction in the early 1960s. For more information, call Universal Audio at 831-466-3737. Circle EQ free lit. #115.

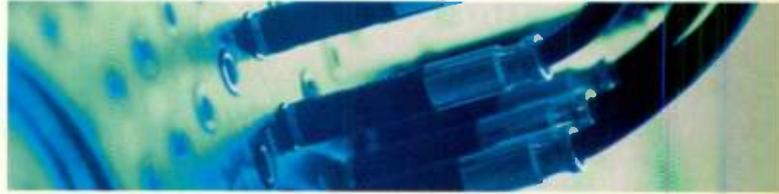


World Wide Audio, without leaving your studio.

Rocket Network takes audio production beyond the boundaries of studio walls, making connections that let you work with anyone, anywhere, anytime. It's like a global multi-track.

On-line Flexibility.

Rocket Network uses the Internet to allow professionals to work together on audio productions without having to be in the same physical space. Instead of shipping tapes from place to place or renting high-capacity phone lines, you log into your Internet Recording Studio, where Rocket Network handles the details of passing your parts to others and vice versa. That leaves you free to concentrate on capturing the perfect take, using your own local system to record and edit. Whenever you're ready for others to hear your audio or MIDI parts, you simply post your work to the Internet Recording Studio, automatically updating everyone else's session.



Professional Tools.

Through partnerships with leading audio developers, Rocket Network is bringing RocketPower™ to the professional tools you already use, starting with Steinberg Cubase VST and Emagic Logic Audio. A multi-level permission system lets you control access to your Internet Recording Studio. And our RocketControl™ client offers built-in chat capabilities, so everyone in the session can chime in with feedback as the project takes shape. The Rocket Network Web site offers additional resources and services for audio collaboration.



Full Audio Fidelity.

With Rocket Network, there's no compromise in audio quality—the system handles files in a vast range of formats and compression levels, all the way up to uncompressed 24 bit/96kHz. And you don't need access to a super-fast connection; DSL or T1 is great, but you can also work productively over a humble 28.8 dial-up. The system supports multiple user-defined presets for posting and receiving, and handles all conversions, letting everyone participate in their own preferred format. That means you can conduct a session in a speedy, low bit-rate "draft" mode, then move on while the final parts are posted in the background at full-fidelity.



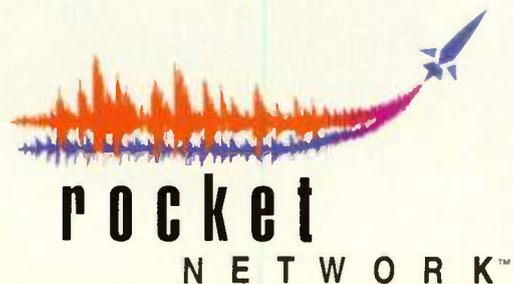
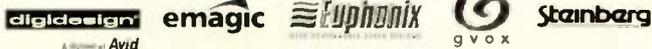
A Powerful Connection.

Rocket Network adds a new level of freedom to creative collaboration, allowing you to choose your team—singers, musicians, voice-talent, composers, engineers, producers—based on who's right for the project, wherever they happen to be. With full fidelity, plus anytime, anywhere productivity, Rocket Network is a powerful new connection to the world of audio production.

Escape the boundaries of your studio walls.

Register at www.rocketnetwork.com

source code: RN20



Internet Recording Studios

Meyer X-10 Monitor

BY STEVE LA CERRA

Meyer Sound's latest introduction for control room monitoring is the X-10 high-resolution linear control room monitor, a self-powered "main" type monitoring system intended for studio and broadcast applications. Unlike many large-format studio monitors, the X-10's may be either soffit-mounted or used free-standing in the midfield. A two-way, biamped package, the X-10 is Meyer Sound's first loudspeaker to feature the company's proprietary Pressure Sensing Active Control, or PSAC, technology intended to dramatically enhance low-frequency response. Each X-10 cabinet contains a single 15-inch, low-frequency driver and a 4-inch high-frequency driver mounted on a low-distortion waveguide. Dedicated MOS-FET, Class AB/H amplifiers deliver 1,200 watts to the woofer and 620 watts to the

high-frequency driver, combining to produce peak SPLs of 135 dB. These amplifiers operate in pure Class A at output levels below 40 watts (nominal).

In order to understand the significance of PSAC, one first has to recognize

high sound levels. A typical approach is use of two 15-inch or two 18-inch woofers in each cabinet. Unfortunately, when operating above 250 Hz, dual woofers can produce destructive interference through comb filtering. The crossover can be

Meyer X-10 Control Room Monitor

What is it?	A high-resolution control room monitor system that can be both stand- or soffit-mounted.
Who needs it?	Recording and broadcast studios who require extremely accurate audio monitoring.
Why is it a big deal?	Special features allow the X-10 system to maintain audio accuracy even at high SPLs.
Special notes	Meyer includes system setup and room integration in the package.
Shipping	Now.
Suggested retail price:	\$38,630. A system with stereo subwoofers and crossover is \$51,630.
For more information:	Call Meyer Sound at 510-486-1166 or visit www.meyersound.com .
EQ Free Lit. #:	101

the compromises that must be made in order to make a loudspeaker capable of accurate low-frequency reproduction at

changed to a frequency below 250 Hz, but since most tweeters don't reach that low without producing significant distortion, the system would have to be changed to a three-way or four-way system — which can introduce phase and crossover distortion.

In an effort to avoid these tradeoffs, Meyer engineers made the decision to build the X-10 as a two-way system with a single low-frequency driver and a crossover point of 500 Hz. The X-10's internal crossover is active and includes a loudspeaker protection circuit that remains completely out of circuit except when triggered by speaker-threatening input overloads. To maximize low-frequency output from the single 15-inch driver, Meyer developed (and manufactures) a high-output, 15-inch transducer with a long-excursion, four-inch diameter voice coil suspended in a high-intensity (1.5 million Maxwells) magnetic field. The driver also employs a unique suspension that holds the voice coil in a linear region of the magnetic gap to maintain linear response.

Augmenting this new woofer is Meyer's Pressure Sensing Active Control. Originally developed by the University of California at Berkeley for



critical aerospace hydraulic control systems such as those used in Stealth fighters, PSAC involves placement of a pressure-sensing device (similar to a condenser microphone) one inch in front of the 15-inch driver to monitor the driver's output pressure. Data from the sensor is fed into the PSAC microprocessor where it is compared to the input signal. Computer-modeled correction circuits are then used to adjust a feedback circuit so that the input and output signals are equal. The result is said to be a very high level of linearity and resolution in the low-to-mid frequencies, with a response that's only 2 dB down at 23 Hz.

Complementing the X-10's low-frequency technology is a patented low-distortion, high-frequency driver and waveguide. The driver uses a four-inch aluminum alloy diaphragm optimized for high output levels at the upper frequency limits. Neodymium magnets are used to produce the magnetic field, and the diaphragm's voice coil is Ferro fluid cooled for consistent response under extended high-SPL operation. To achieve a uniform dispersion pattern throughout its frequency range (thus creating a wide sweet spot), the driver is mounted on Meyer's patented Constant Q waveguide. Meyer likens the resulting high-frequency character to that of a soft-dome tweeter, completely void of the typical "horn sound." When measured at 12th-octave resolution, no lobing is exhibited throughout the range of coverage — something no dome tweeter has accomplished.

For situations where high-SPL monitoring is required, a companion powered subwoofer — the X-800 — is available. This dual 18-inch cabinet does not extend the low-frequency response of the X-10; rather it is intended to increase system headroom by a minimum of 5 dB while maintaining the accuracy of the system's low end. The output of the X-800 is restricted to frequencies well below 250 Hz so the comb filtering effects discussed earlier are not a problem. An active crossover module — the X-01 — is available to facilitate integration of one or two X-800 subs into an X-10 system for either stereo or 5.1 surround monitoring. Three crossover points may be selected for the X-800: 120, 100, and 80 Hz, and a bypass switch allows the subwoofer to be switched in or out of the system without interruption to the X-10's.

Think how hard it would be to own every piece of audio gear you may ever want to use... ever!

Now log on to www.dreamhire.com and find out how easy it is to rent... always!

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CIRCLE 13 ON FREE INFO CARD

Bass Management for Surround Sound

It's common knowledge that effective multi-channel monitoring requires accurate reproduction of low-frequency energy. Traditionally, achieving this goal has been difficult. But with the Model 65 from Studio Technologies, bass management is now available in a simple, yet powerful product.

The Model 65 provides a 5.1 input, along with five main and two subwoofer outputs. Using conservative filter design, the all-analog circuitry redirects bass energy from the main inputs to the desired subwoofer outputs. While you can use the Model 65 right out of the box, we've made certain that you can "tweak" it to meet the needs of your specific application. Want to try 10.2? No problem with the Model 65!

Of course, the Model 65 is directly compatible with Studio Technologies' StudioComm for Surround products, as well as being easily connected with other surround sources. For more information, call us or check out our website.

**STUDIO
TECHNOLOGIES
INC.**

5520 West Touhy Avenue, Skokie, IL 60077 U.S.A.
(847) 676-9177 Fax (847) 982-0747 www.studio-tech.com

CIRCLE 46 ON FREE INFO CARD



16 total channels • 4 buses
16 XDR™ mic preamps • 16 mono mic/line channels • 4 stereo aux returns • 6 aux sends per ch. • 3-band equalization w/swept midrange

1604-VLZ™ PRO

16 total channels • 4 buses • 10 XDR™ mic preamps • 8 mono mic/line channels • 2 mic/stereo line channels • 2 stereo line channels • 4 stereo aux returns • 4 aux sends per ch. • 3-band equalization w/swept midrange on mono channels • 4-band fixed equalization on stereo channels • white sidewalls optional

1642-VLZ™ PRO

14 total channels • 2 buses → Alt 3-4 extra stereo bus • 6 XDR™ mic preamps • 6 mono mic/line channels • 4 stereo line channels • 2 stereo aux returns • 2 aux sends/ch. • 3-band EQ

1402-VLZ™ PRO

12 total channels • 2 buses → Alt 3-4 extra stereo bus • 4 XDR™ mic preamps • 4 mono mic/line channels • 4 stereo line channels • 2 stereo aux returns • 2 aux sends/ch. • 3-band EQ

1202-VLZ™ PRO

VLZ PROs have also won more industry awards

VLZ™ PRO Series with XDR™ mic preamps. Precise creative tools for serious artists.

If you're serious about your creative product, your equipment list should start with a really good mixer.

Our VLZ™ PRO Series has become the industry standard for compact mic/line mixers. They're used day-in and day-out by more professionals to create more albums, demos, movie and broadcast sound tracks, commercials and web casts than any other brand.

They mix and submix in most of the world's top recording studios (we know of one 1202-VLZ™ PRO that's actually built into the control surface of a \$1,000,000 digital console). And VLZ™ PRO mixers are in more basement, garage and back-bedroom home studios than you can shake a patchcord at.

XDR™. The finest microphone preamplifier design ever built into a compact mixer.

Because the preamps in mixers have long been considered a poor second to \$1000 to \$2000-per-channel outboard preamps, Greg and our Analog Engineering Department spent two years of meticulous experimentation creating a sonically comparable mic preamp circuit.

According to numerous cynical recording engineers, magazine reviewers and a lot of satisfied owners, we succeeded.

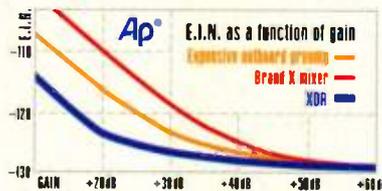
One reason is the advanced 2068 op-amps that are a foundation of the XDR design. They blow away our competitors' 4580 op-amps in terms of noise and distortion. Consider these real, measurable XDR™ (Extended Dynamic Range) microphone preamp specs:

- 0.0007% Total Harmonic Distortion
- 0.0008% Intermodulation Distortion



mic E.I.N. at practical real-world gain levels

By "practical" gain levels, we mean the +20 to +30dB normal operating range. The chart below compares E.I.N. for XDR™ ■, an Awesomely Expensive Outboard mic preamp ■ and a compact mixer ■ whose specs claim -129dBm E.I.N...but only at +60dB gain.



While XDR™ sonically rivals esoteric designs, it's no creampuff. We also built in protection against damage from shorts and "hot patching"...and the best RFI rejection of any compact mixer.

But don't just take our word for it...

Here are a few comments we gleaned from just *one week* of incoming VLZ™ PRO Series owner registration cards:

"Love the XDR mic preamps... clean and sweet!" C.H., Tampa FL

"A quality replacement for a far more expensive mixer brand." J.C., Arlington TX

"I was contemplating a couple of '-----' outboard mic preamps (\$2000+). The new XDR preamps let me make my next purchase a CD burner or an outboard processor instead." M.M., Miami FL

- 130dB total dynamic range to handle hot digital sources

- 3Hz to 192kHz bandwidth

- Ultra-low

"Great product. XDR's are a great innovation and the value's unbeatable."

J.K. Boise ID

"I hooked up my brand spankin' new AKG 3000 and all I can say is 'cool.'"

T.D., Waukesha WI

"I've been through numerous small consoles that were noisy. This one isn't, so it's a keeper!" J.F., Boca Raton FL

"Gorgeous preamps. Nice job, guys."

J.C., Provo UT

"Nothing comes close to the quality/price." P.K., Spokane WA

"Excellent frequency response... excellent mic preamp. Worthy of our Neumann mics." C.M., Atascadero CA

"Killer mic preamps!" R.A., New York NY

The VLZ™ PRO Compact Mixer Series:

- Premium XDR™ mic preamps and VLZ™ circuitry for ultra-low noise
- New high-performance 2068 op-amps
- Musical, sweet-sounding equalization at useful, logical frequencies
- Sharp 18dB/octave Low Cut filters
- Stereo In-Place Solo
- Easy channel level setting via Solo
- Constant Loudness pan pots
- Inserts on all mono mic/line channels
- 60mm long-wearing, logarithmic-taper faders (except 1202-VLZ PRO)
- Sealed rotary controls
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CIRCLE 19 ON FREE INFO CARD

Jon Butcher Goes Poolside

Guitarists Jon Butcher and Andrew Rollins record albums and score television and film features in their project studio

STUDIO NAME: Brothers West

LOCATION: Studio City, CA

KEY CREW: Jon Butcher, Andrew Rollins

CREDITS: Jon Butcher has released 12 CDs, including *Wishes*, *Pictures From The Front*, *The Jon Butcher Axis*, *Electric Factory*, and *Positively The Blues*. He scored the independent film *Trash*, as well as *Pensacola*, *Team Nightrider*, and *Turks* for CBS television. In addition to *Happily Ever After* (HBO), Andrew Rollins has worked with BB King, Dionne Warwick, Graham Nash, and Terrence Trent d'Arby. Together, Butcher and Rollins have recently worked on *The Jimi Hendrix Story* (Showtime), *Shake, Rattle and Roll* (ABC), *Buffalo Bill* (A&E), and *Freedom* (a Joel Silver Pictures TV production due for release this Fall). They are currently working on *Star Trek Voyager* for UPN, and will soon begin spotting a feature film for the CBS network.

MIXING CONSOLE: Alesis X2

MONITORS: Yamaha NS10M, Event 20/20bas, Alesis Point Seven, Mackie HR824

AMPLIFIERS: Samson Servo 500, Peavey 200-watt monitor amp, Behringer Powerplay headphone amplifier

RECORDERS: Alesis ADAT XT20 [3] and ADAT [2]; TASCAM DA88, Roland VS1680, Fostex D5 timecode DAT, HHH CDR-800, Panasonic SV3800, Denon DN770R cassette deck

OUTBOARD: Peavey VCL-2, Avalon VT-747, Aphex Aural Exciter, Presonus ACP22 stereo compressor/limiter and ACP88 8-channel dynamics processor; Alesis 3630, Tech21 SansAmp, Line 6 Pod

EFFECTS: Lexicon PCM80 and Alex; Korg 3000XL and AX1000; Alesis Quadraverb 2, Midiverb 4, Microverb 4, and Wedge; Digitech S100, TC Electronic Finalizer Plus, Behringer Edison

MICROPHONES: Neumann TLM 103 [2] and

(tube) U 47; Audio-Technica AT4060 [2], Rode NT2 [2], Shure SM57 [4], AKG C414

MIC PREAMPS: Peavey VMP-2, dbx 386 w/digital output, Joemeek VC1 and VC5 voice channels

SAMPLERS/KEYBOARDS/MIDI MODULES: Roland JV-2080 with expansion cards and U20; Kurzweil K2500XS (rack mount), Alesis QS8

COMPUTERS: Apple PowerMac G4/450 MHz (with SCSI card), 184 MB RAM, 9.5 GB (internal) hard drive

AUDIO INTERFACE: MOTU 2408

SOFTWARE: Pro Tools V5, MOTU Digital Performer 2.7, Steinberg Cubase 4.1

INSTRUMENTS: Various Fender and Taylor guitars

GUITAR AMPLIFIERS: Peavey Delta Blues, Fender Vibro King and Blues Deluxe

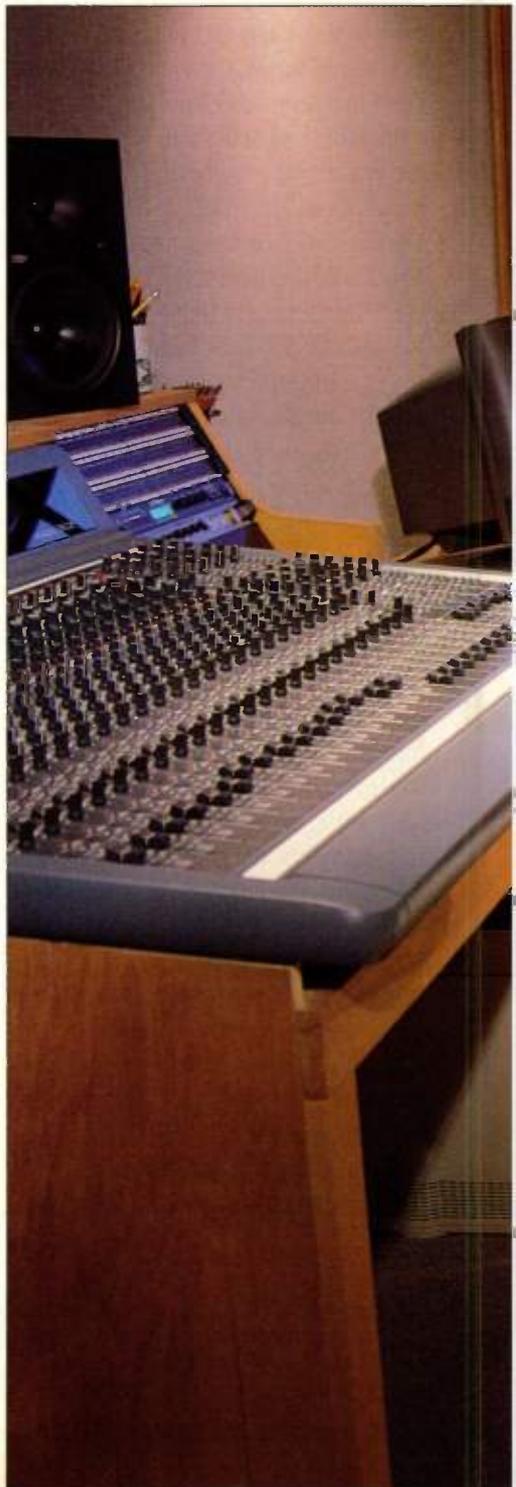
STUDIO NOTES: According to Andrew Rollins, "The studio was formerly known as Poolside, and is literally constructed opposite my pool and back lawn. Since I have a full view to the outside, I can keep an eye on the kids while I'm in the studio! Plus it's a break from the typical studio view."

PRODUCTION NOTES: Butcher finds the Roland VS1680 to be "a really cool little tool. I can use it as a scratch pad because it's so easy to use, but it has great sonic depth — so I can also use it as an adjunct to the main system. It synchronizes with the rest of the gear without a problem. A lot of times I do scratch tracks on the VS1680 that become finished tracks. I finally figured this out: The scratch tracks are (almost always) the ones with the feeling. Let's face it — when you're doing a scratch track, you're still putting a lot of attention into getting it right, so that it feels good to you. You're just telling yourself, 'Well...I'm going to go back to re-do that right later on...' The fact is that often the scratch track is the one that has the vibe."

Rollins explains that he likes to have tracks on tape. "Often a track is created in Digital Performer and then recorded onto ADAT. It's easy to archive and facilitates mixing through the Alesis X2 console. I love the X2 — it has a really nice-sounding EQ and gives us plenty of inputs for mixdown. Jon and I are scoring to picture as a team, which is unusual in comparison to most film composers (who work solo). Since

we're both guitar players, we try to score organically."

Butcher notes that, "At times we do make extensive use of sampled sounds where appropriate. This is particularly true in situations where the director would like an authentic string orchestration but doesn't have the benefit of budget for it. Our 'organic' approach is



as much Zen as it is material. We use anything and everything under the sun to achieve our musical vision — at the end of the day, I'd bang on a Burger King box if I could coax a sound out of it!"

EQUIPMENT NOTES: Butcher explains that his favorite guitar "is probably the least valuable guitar that I own. I've used this guitar on many recordings over the years, and it's really a Frankenstein — a blue Strat that's made of a Mighty-Mite neck, some Seymour Duncan pickups, and maybe a Bill Lawrence pickup...

really just parts. It's ironic that this guitar has turned out to be the coolest, mel-lowest guitar I have ever owned. The parts may be worth only about \$400, but I wouldn't sell it for \$4,000! It's beat, the truss rod is coming through the back of the neck — it is *the* instrument, even above the 1960 sunburst Strat or the Guild fat-body jazz guitar I have. This old blue Stratocaster can sound like archtops or Gibsons, not to mention the true Fender Strat. I am overjoyed with it. It doesn't have any monetary value, but

I'd freak if anything ever happened to it.

"I am partial to Peavey tube amplifiers. I'm using the Delta Blues amp, which is the fattest amplifier ever! I've had old Twins, blonde Twins, and even though you can get one that sounds good, chances are that, out of ten old blonde Twins or Supers, six of them have problems with buzzing or something. I found I can rely on these Peavey amps whether it's playing live or throwing an SM57 in front of it to record."

EQ



RCA MI-12016-H

A rugged mic that's not afraid to get up close

MICROPHONE NAME: RCA MI-12016-H

FROM THE COLLECTION OF: Stephen Sank, Champlain Valley Speaker Company, Albuquerque, NM

PRICE WHEN NEW: Approximately \$50

YEAR OF MANUFACTURE: circa 1955

TYPE OF MIC: Pressure operated moving coil

FREQUENCY RANGE: 200 Hz to 9,000 Hz

DIRECTIONAL CHARACTERISTICS: Non-directional

OUTPUT LEVEL: -55 dBm @ 1,000 Hz (level below 1 volt per dyne per square centimeter)

HUM PICKUP LEVEL: -95 dB (level below 1 volt, hum field 0.001 gauss)

OUTPUT IMPEDANCE: 250 Ohms

EXTERIOR FINISH: Two-tone umber gray

DIMENSIONS: 2.87 high x 2.43 wide x 3.31 deep (inches)

WEIGHT: 1.25 pounds (less cable)

MOUNTING: 1/8-inch female pipe thread

MIC NOTES: According to an RCA catalog page from 1955, the MI-12016-H Aerodynamic Microphone had "excellent response for close-talking announce purposes. Because of its light weight and small size, it is ideal for remote pickup and mobile use. It performs exceptionally well for paging and announcing operations into areas of high noise level because its rising high-frequency characteristic gives excellent intelligibility. Another application for which this unit is exceptionally suited is for use of an individual soloist, where a second microphone, usually a velocity type, is used to pick up the musical accompaniment. Either a floor stand or a desk stand may be used as a mounting or it may be fitted with a handle for use in sports announce work."

USER TIPS: The MI-12016-H was designed and constructed by RCA for dependable performance and rugged service. It is relatively insensitive to mechanical shock and wind disturbance, and can actually withstand nominal exposure to moisture or rain due to its plastic diaphragm. Though the mounting thread on the mic is a standard 1/8-inch female pipe thread, the mic was originally furnished with an adapter that would allow mounting on a 5/8-27 mic stand. **EQ**



PHOTO BY EDWARD COLVER

Steve Earle doesn't follow formulas.



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Diaphragm Tube
Condenser

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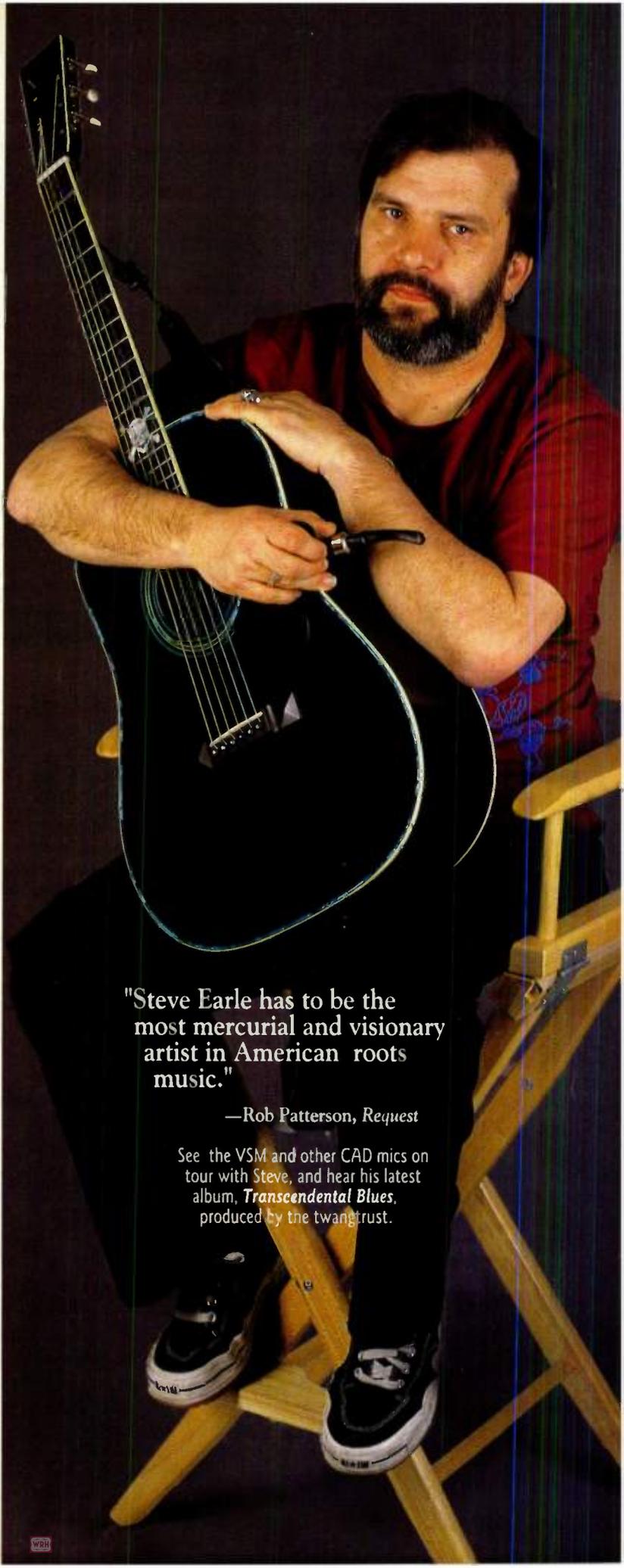


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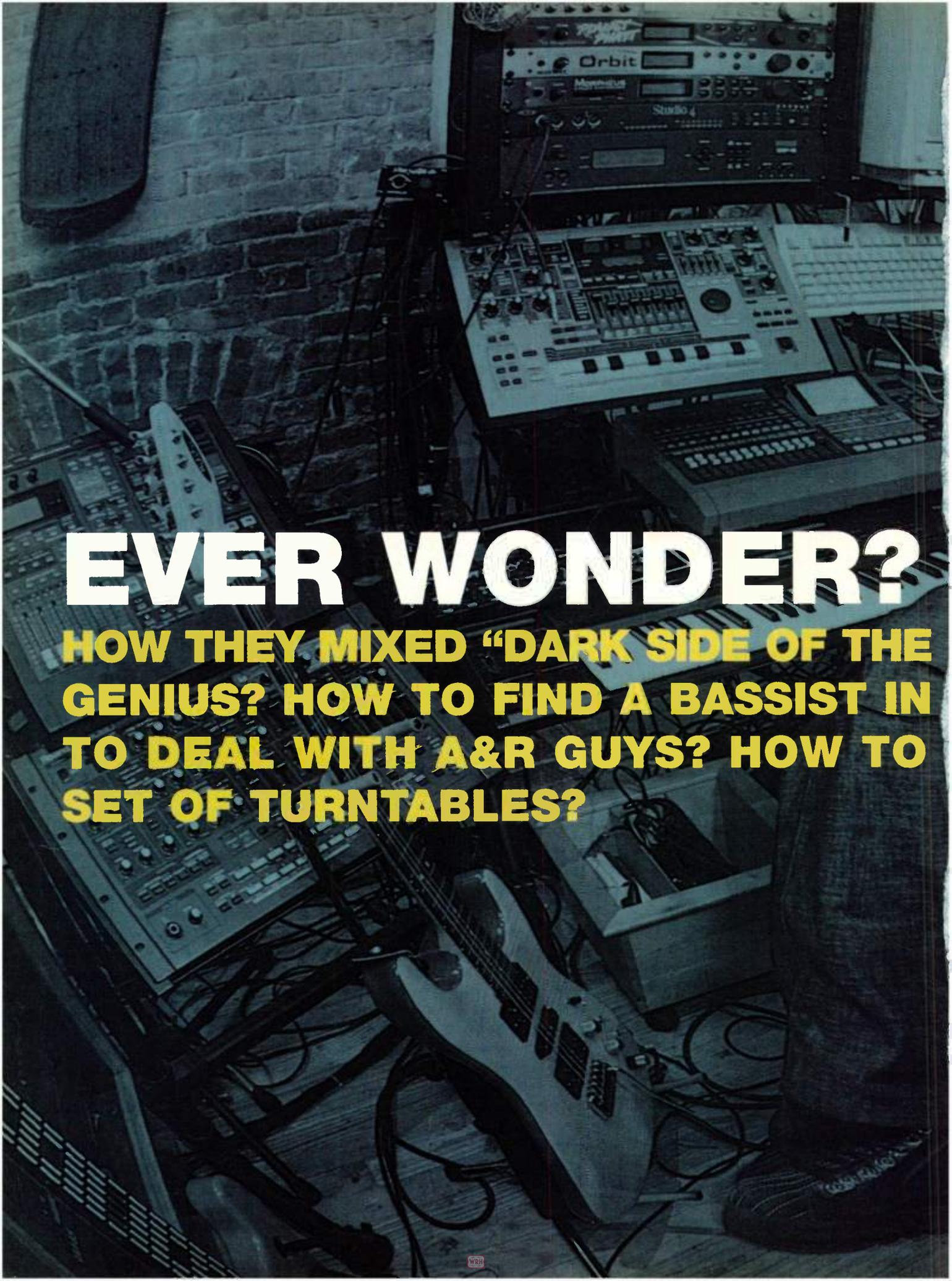
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"Steve Earle has to be the most mercurial and visionary artist in American roots music."

—Rob Patterson, *Request*

See the VSM and other CAD mics on tour with Steve, and hear his latest album, *Transcendental Blues*, produced by the twangtrust.



EVER WONDER?

HOW THEY MIXED "DARK SIDE OF THE GENIUS? HOW TO FIND A BASSIST IN TO DEAL WITH A&R GUYS? HOW TO SET OF TURNTABLES?

A photograph of a Black man with long dreadlocks, smiling and playing an electric guitar. He is wearing a white jacket. The background is a music studio filled with various pieces of equipment, including large speakers, a keyboard, and other gear. The lighting is dim, with a blueish tint.

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Eddie Kramer



PHOTO BY ED FREEMAN

Re-living engineering history

BY MR. BONZAI

Mr. Bonzai: What was the basic setup for your early four-track Hendrix sessions?

Kramer: It varied, but I'd probably have some Neumann U 67's for overheads and the toms, Beyer M160's, AKG D12's, or D20's for the bass drums, D30's — big, fat dynamic mics, AKG C24 as a room mic, C60's, sometimes a miniature condenser on the snare. Ampex four-track 1/2-inch, Helios 24 x 6 console, Pultecs, EMT Plate, PYE compressors, Helios compressors, and sh*tloads of tape delay.

Sh*tloads?



Well, if you think about it, what did we have? Compression, EQ, reverb, and tape delay. You could work wonders with tape delay — slap, delay the sends of the EMT plate, etc.

What is the difference between the way you worked then and the scene today?

The key here is the fact that we are looking at a different era. These musicians were extremely well trained, although Jimi was self-taught — but we are talking about a genius. Mitch Mitchell came from the school of jazz and Noel [Redding] was a very good rhythm guitar player who suddenly became a bass player. We had the integration of a genius guitar player and a tight rhythm section — and the amount of time we spent in the studio was really quite small. Jimi's producer, Chas Chandler, came from a pop sensibility of three-minute songs, low budgets, and three-hour sessions where you had to pound it out and get out of there.

How much did you get done in three hours?

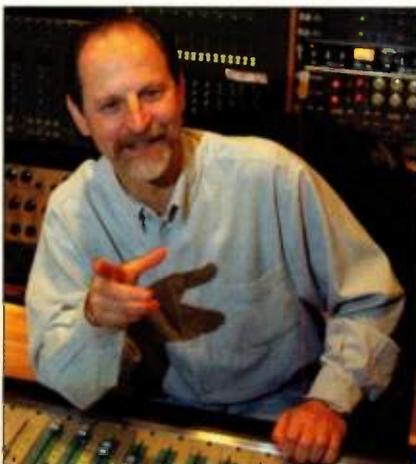
Three songs. We had very little time to even get a drum and bass sound, although I did manage to record the drums in stereo for the second album, *Axis*, and after. We had to cut the track, quickly mix it down to another four-track machine, put on another guitar, put on the vocal and the background vocals, and that was it.

What did you learn from Jimi?

Stay open-minded and let the sounds take you on a journey.

Do you remember the very first time you met?

Yes, it was at Olympic Studios. I was asked to do the first sessions there with Jimi.



SUSPECT REPORT

Suspects: Eddie Kramer

Ancestry: English ("Me mum's a Cockney."), Russian, Polish, South African, Jewish

Occupation: Engineer/Producer

Birthplace: Cape Town, South Africa

Residence: Cold Spring, NY

Vehicle: Volvo GLT

Diet: Vegetarian

Identifying Marks: Stylish goatee

Pet Peeve: "Gear that breaks down due to lack of maintenance."

Credits: Jimi Hendrix, Beatles, Rolling Stones, Led Zepelin, Bad Company, David Bowie, Eric Clapton, Joe Cocker, Peter Dinklage, Anthrax, Kiss, Curtis Mayfield, Santana, Traffic, Vanilla Fudge, et cetera!

Notes: Kramer and I met at L.A.'s Extasy Recording Studios while he was mixing tapes of Jimi Hendrix, originally recorded in the late '60s. The new material will be released on the Hendrix family's Dagger Records. A four-CD MCA box set is also scheduled for September release, featuring tracks recorded over a four-year period dating from 1967 to 1971.

The studio manager said, "Oh, Eddie, we've got an American chap coming in." Of course, I had heard of him, because he had done some singles at Kingsway and at CBS studios, and "Hey, Joe" was on the radio. Jimi and Chas weren't too happy with the sound they had been getting, and had heard about Olympic opening in January of 1967. They had recorded four or five tracks and I ended up cutting the rest for the first album, plus overdubbing on all of them. When we first met, he was very quiet, very soft-spoken, very shy. We hit it off because I was able to deliver some sounds that he hadn't heard before.

I can imagine he had sounds in his



EDDIE KRAMER PHOTOS BY MR. BONZAI

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head that had never been captured.

Yes, and he would come up with new sounds, crank up an amp — do things that left us breathless. That would inspire us to be different, take a chance, mic it in a different way, EQ in a new way, whatever was needed to take his ideas to another level.

Can you elaborate on how Jimi “created” live effects?

Well, we’ve just finished the first Hendrix 5.1 mix at Kampo Studios, from the Isle of Wight Festival movie, 1970. We found the original footage, and it sounds so incredibly

good! There are close-ups of Jimi’s feet and hands, and you realize how absolutely fluid he was. Little movements create sounds that are monumental. He was a master of his instrument and a wizard with his pedals, which were hot-rodded by Roger Mayer. Such command of the language of the guitar!

Could you tell me a little about the “Whole Lotta Love” sessions with Led Zeppelin?

The entire album was mixed in two days at A&R Studios in New York. It’s eight-track and by the way, the console had only

two pan pots! We put the tracks up, and 7 and 8 were the vocals. Track 8 was the final vocal, and 7 was the one prior. For some reason, 7 was breaking through the console and I couldn’t turn it off, so you could hear it, “Wo-man. You need it,” slightly out of time, so I just cranked up the reverb and Page heard it and said, “Great — Just leave it!”

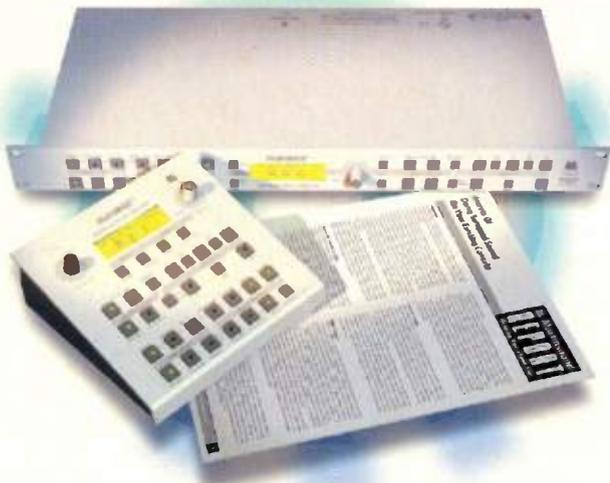
David Bowie and John Lennon, “Fame”?

Talk about a “high level” conference. Bowie walked into the studio and Carlos Alomar was playing this riff and Bowie said, “I



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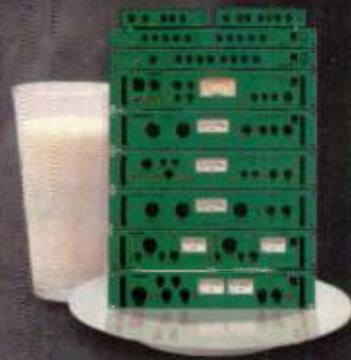
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love that." Built the song around it right on the spot. John Lennon was in the vocal booth playing rhythm guitar. He was the greatest rhythm guitar player I had ever heard — absolutely like a rock!

Vanilla Fudge?

What a record — Carmine Appice's huge drums and the coolest blend of vocals. The band taught me how to swear like a New Yorker.

Joe Cocker?

I did sessions with him for the first album, on Shelter Records. Did some at

Olympic, and then some here in America in '68 at Record Plant. What surprised me was that in the studio he didn't flail around like on stage. Just a great voice and a very tight band — the Grease Band.

Rolling Stones?

I was assistant to Glyn Johns on *Between the Buttons*, *Flowers*, and *Satanic Majesty's Request*. I actually played some percussion on that one. The first tunes I engineered solo were for *Beggars' Banquet*. The tracks for "Parachute Woman" and "Jumping Jack Flash" were cut with the

band sitting around Jimmy Miller's Wolensak cassette deck, with the mic in the middle of the band. We played that back through a little Philips speaker and recorded it onto one track of a four-track and that was the basic track.

The Beatles?

Another classic Olympic session. This was the only time I was scared sh*tless. Working with Jimi, the Stones, and Traffic was great fun — but the Beatles, *oh jeez!* The first time was because they couldn't get into EMI; Keith Grant was the engineer, and I was the assistant that night. We cut "Baby You're A Rich Man," basic track, overdubbed, and mixed it in one night. The next time I was the senior engineer and I was understandably a bit nervous, but they were very sweet. They had been there before, cutting some background vocals for the Stones, and they liked the studio — the only great independent studio in London. I cut the basic track for "All You Need Is Love."

Well, what are you up to now?

About five-foot, seven-and-a-half! Seriously, I'm so pleased with the Hendrix box set, coming out in September. As far as new bands, I'm working with The Gabe Dixon Band, just signed to Palm Pictures through Mars Music. And I'm halfway through an album with a band I found during a lecture series at Middle Tennessee State University. I do four-day seminars — preproduction, tracking, overdubbing, and a mix. They sent me a pile of CDs and I picked this band to be my guinea pig. They're called Fair Verona — an all-girl, punk-rock, in-your-face band from Nashville. They're really great, signed to a local indie label, I.V. Records. I'm lecturing and working on my book, *From The Other Side of the Glass*, and I will be doing an exhibition of photos I took with all the bands I worked with during '67 to '72.

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and indisputable fact: the LSR25P consistently outperforms any other monitor in its class. As a result, it's gaining popularity in all critical monitoring applications, from digital workstations and near field stereo to 5.1 mixing. In fact, the LSR25P is as comfortable on the road as it is on the meter bridge.

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Sammy Peralta loves music. That pure and simple fact comes through strikingly clear as he sits at his keyboard tinkering with half-written tunes. Sammy's background includes work with talents including Tito Puente and Willie Bermudez. "I have to be careful because I can get so lost in the music, I sometimes forget I have a family that would like a little of my attention too".

also features 150 watts of linear power as well as purpose-built transducers with JBL's most current thinking and designs. This last point has earned the entire LSR family of monitors continual critical acclaim for more than three years.

One last point: Sammy Peralta's new CD *On the One* featuring Lenny White was mixed entirely with LSR monitors.

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CIRCLE 75 ON FREE INFO CARD

Sending Hi-Res Music via Internet

Put the Internet to work for more than just surfing and e-mail

BY DAVID TORREY

In the March 2000 issue of *EQ*, I outlined ways to boost the quality of the CD-Rs that you burn. Whether you mix down to 16- or 24-bit resolution, CD-R is a universal interchange format for music that is sent out for mastering or replication. The right combination of burner and media can produce error rates that are very low. Even so, glitches can still crop up. I ask clients to send two copies of a premaster whenever possible.

Could there be a faster, cheaper, better way? Yup. Therein lies a story....

A client in Singapore e-mailed me recently. (Call him Bill.) He needed his latest album mastered ASAP. The release was behind schedule. Radio stations had already heard rough mixes and wanted the finished goods — yesterday. Was there a way to speed the process up?

I asked him two questions: Could he reliably burn CD-Rs? Yes. How fast was his Internet connection? Cable modem, capable of receiving an album's worth of CD audio in a few hours. Good answers — we're jammin' now!

I recommended that he use the Internet, specifically File Transfer Protocol, FTP for short, to send his original mixes to me. I would master the tracks. He could FTP them back to his computer and burn CD-Rs for replication and advance promo. He could also forget about Customs delays and air-courier charges, not to mention save four days shipping. Was he interested?

Yes, but with reservations. Bill had moved MP3 files over the Web, but MP3s are not CD-quality. A master is a different story. How will

FTP work? What about security? Would the music be degraded in any way?

Great set of questions! Let's break it down: FTP is the way that files were transferred across the Internet in the '80s, before the Web existed. It is used millions of times a day because it makes the chore of sending multiple files quick and easy. Two programs are required, one on each end of the connection. They are usually referred to as the server and client.

I already had an FTP server running and connected to the Internet. An FTP server is like a simple Web server. Instead of delivering text, graphics, and multimedia content in browsable hypertext format, it serves up files — and only files. You access an FTP server using an FTP client, which is the equivalent of a simple Web browser. When you start up an FTP client, it asks for the address of the server you need to access and for a login name and password. The client then connects to the server and displays two windows. One window shows the files on your computer, while the other shows files available on the server. If you double-click on a filename displayed in the server window, it automatically downloads onto your machine. Double-click one of your files, and off it goes to the server. Or you can drag and drop files from one window to the other. That's it! Dozens of free FTP clients and servers are available for download off the Web. More on that later....

SECURITY ISSUES

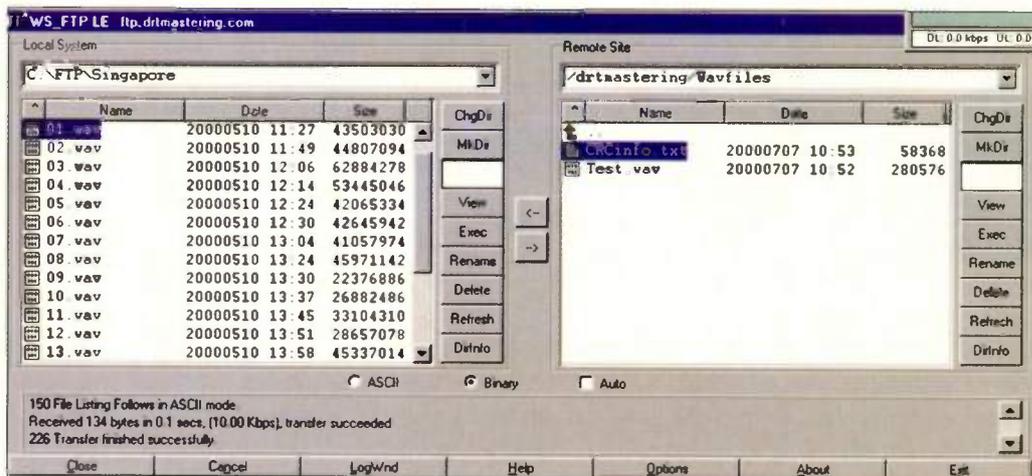
So, we can move files easily. Could someone access my FTP server, grab Bill's music, and share it for free with 10,000 close friends? Nope.

Many FTP servers encourage what are known as anonymous logins. Literally, you use the login name "anonymous," "ftp," or "default," and this grants you access to all the files that are available for download. This is the standard way that FTP servers offer files to the public. No password is required, though it is courteous to type your e-mail address into the space reserved for a password. This allows the system administrator to see who is using their resource.

FTP sites can also be set up for tightly restricted access. You need to have the correct address, a certain login name, and a specific password. Assuming the software is well-designed and the person running the server is careful about selecting login names and passwords, the system will withstand concentrated attempts to break in and access restricted files. FTP has been around for a long time, and the technology is proven.

MAINTAINING QUALITY

Bill was concerned that some of his music might get lost in transit. By this time, he had already downloaded a couple of freeware FTP clients to his machine. I recommended a test: He would FTP a reference track from Singapore to my machine in scenic New Hampshire,



An FTP utility such as WSFTP allows you to transfer files to and from an FTP server.

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then download it back to his computer, a round trip of 19,000 miles. Then he could compare the original and the copy. He did this, and could not detect the slightest difference. Why?

FTP has powerful error checking built into it. When a chunk of (music) data, called a packet, is transmitted, an additional code, called a CRC (cyclical redundancy check) checksum, is sent with it. When the packet reaches the destination, the FTP software uses the checksum to verify that the received data is identical to the original. If the CRC is perfect, the next packet is transmitted. If not, the software asks the sending computer to send the packet again. The CRC checksum is calculated again. The software will not report a successful transfer until every bit of data (pun intended) has checked out as perfect.

IT'S A WRAP

Bill was convinced. I e-mailed him the correct address, login name, and password. He uploaded 14 tracks. After they were mastered, I placed the finished tunes in WAV format on my server. I e-mailed him that the album was complete, he logged back in to the server, and downloaded the entire album in less than three hours. A few hours after that, he had burned multiple CD-Rs and the album was getting advance airplay. Everybody was happy. Time to kick back....

You need only three things to make a similar scenario work for you — a CD burner you trust, a fast Internet connection, and an FTP client. Burners often come with computer systems these days, and many do a fine job, especially if you burn at less than maximum available speed. DSL, cable modem, and other fast Internet connections are becoming common today, even outside metro areas. Talk to your mastering house about the options they offer. Most can accept WAV and AIFF files, which are two common formats.

HOW DO YOU SELECT AN FTP CLIENT?

There are dozens available for both Mac and PC. I use an old reliable one called WS-FTP. Some people prefer CuteFTP, which has extra features. Bill in Singapore used Leech FTP, which operates in a very cool multi-threaded way. It doesn't move your files in sequential order, it transfers them all simultaneously. I watched in amazement as my server transmitted 14 files at the same time to the same destination. Leech FTP efficiently used every scrap of speed that my server could dish out.

RESOURCES AND NOTES

- WS-FTP, CuteFTP, WINZIP, XITAMI, and tons of other software can be found at www.tucows.com.
- WFTPD server can be found at www.wftpd.com.
- Leech FTP can be found at <http://stud.fh-heilbronn.de/~jdebis/leechftp/>.
- CRC32 can be found at www.winsite.com, another large software site.
- If you have any trouble locating a program, type its name into a search engine such as www.metacrawler.com. This will lead you to multiple sources for each file.
- If you search on "FTP FAQ," you'll find many sources of information on FTP servers and clients.
- If you need super-secure file transfers, check out encryption software at www.pgpg.com.

WHAT ABOUT SETTING UP AN FTP SERVER?

There's no need to do this unless you're interested in providing files to other people. If you do, there are many choices. The one I use is called WFTPD. It's fast, simple, secure, and inexpensive. I also have a freeware Web server, Xitami, which includes a similar FTP service (called a "daemon") as part of the package. Both of these programs use few system resources. You can easily set up a fast FTP server on a slow Mac or Windows computer if you don't plan on having dozens of simultaneous users. The bottleneck will be your connection speed, not the processor speed. Eight or 16 MB of RAM is usually more than enough.

PARANOID ABOUT DEGRADATION?

If you have a PC, here's a neat way to verify that the files on your hard drive are perfect copies of the files that the mastering engineer created. After you download your music via FTP, grab a copy of a handy little program called CRC32. It lets you quickly generate a 32-bit CRC checksum for an entire WAV file. I use it as follows: The mastered WAV files are stored in a single directory. I go the DOS prompt, available from the Program menu in Windows, and change directory to the location of those WAV files. (If I stored them on drive "M:" for example, I use the command "CD M:\.") Then I type in the command "CRC32 *.WAV." This generates a checksum for all WAV files in this directory. I place these values in a simple Notepad text file, which the client downloads along with the music. The client can use CRC32 to regenerate the checksums for the files — exactly as they sit on their hard disk, ready to burn to

CD-R. If the new checksums match the ones in the text file, you have a true mirror image. Changing even one sample out of the tens of millions contained in a music file will result in a radically different checksum.

PARANOID ABOUT SECURITY?

An archiving utility such as WINZIP allows you to password-protect a file or group of files. Even if a malicious software cracker intercepts the file in transit, they would need the password to play the music. WINZIP will also compress files so that they can be transmitted more quickly, but most music of 16-bit resolution and higher is too random in nature to benefit greatly from this type of data compression.

Security-conscious folks should be aware of a "feature" of CuteFTP and many other shareware software programs: They automatically transmit information about your system, plus ad banners that you click on, back to a central database. This activity continues at least until you register (pay for) them. The term spyware is often used to identify these programs. While spyware activity poses no threat to the security of your music, some people are concerned that the spyware engine itself could be hacked by experts to gain "back door" access to your computer. Check www.grc.com for more info.

David Torrey started building audio gear when he was nine years old (1962!) and hasn't stopped since. He designs the toys at DRT Mastering (www.drtmastering.com), which specializes in fat analog sounds. He's written a few articles for EQ over the years. E-mail him at davidt@drtmastering.com.



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Yesterday, Today, and Tomorrow

Guitarist, producer, and record company owner Nile Rodgers looks back to go forward

BY HOWARD MASSEY

We may not have much to thank the dreary '70s for — it was, after all, a time that was musically dominated by the polar opposites of disco and punk — but one of the few highlights of the era was the ultra-tight, ultra-polished R&B sound of a band called Chic. Cofounded by guitarist Nile Rodgers and bassist Bernard Edwards, Chic dominated the charts for several years with a string of carefully crafted songs, including "Le Freak" and "Good Times." Before long, other artists were

*turning to Rodgers and Edwards for their production, arranging, and songwriting skills, resulting in massive hits such as Sister Sledge's "We Are Family." In 1979, Rodgers brought his magic touch to David Bowie's milestone album *Let's Dance*, and a few years later he hit solid gold, producing Madonna's landmark singles "Like A Virgin" and "Material Girl." Work with a diverse crop of artists followed, including Jeff Beck, Eric Clapton, Mick Jagger, Duran Duran, the B-52s, David Lee Roth, INXS, Grace Jones, Al Jarreau, and the Thompson Twins.*

Today, Rodgers heads up his own label and production company, as well as Sumthing Distribution, a national record distribution company. One of the most in-demand producers and session players in New York, Rodgers has some truly unique insights on the art of recording.

EQ: I'm guessing you've come up with some great techniques for recording guitar, other than the old '57 up against the grille.

Nile Rodgers: [Laughs.] You know, the thing is, the SM57 up against the grille is pretty damn good! Or a 421, or all sorts of little things.

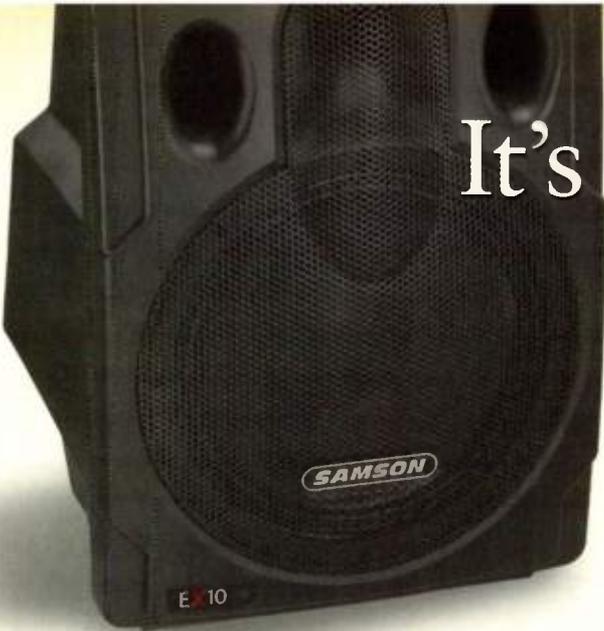
I gather in the days of Chic you did a lot of DI guitar.

Yeah, and I still do to this day. Nowadays, technology has come so far, and the quality of outboard gear is so great, that I find myself using something like [Line 6] Amp Farm. Man, that's ridiculous! We can do so much now that we used to have to toil over in the old days, and now I can't really tell the difference, especially spiritually.

But I've done things like put different amplifiers in series up a staircase and place microphones all up and down the staircase to see which sounded best...all sorts of nutty stuff. Taking the sound out of the back of an amplifier that's not supposed to really be miked in the back, just to see what it sounds like. The old Pignose amps sounded so great to us, we were going to cover them in fur and call it Le Pignose and

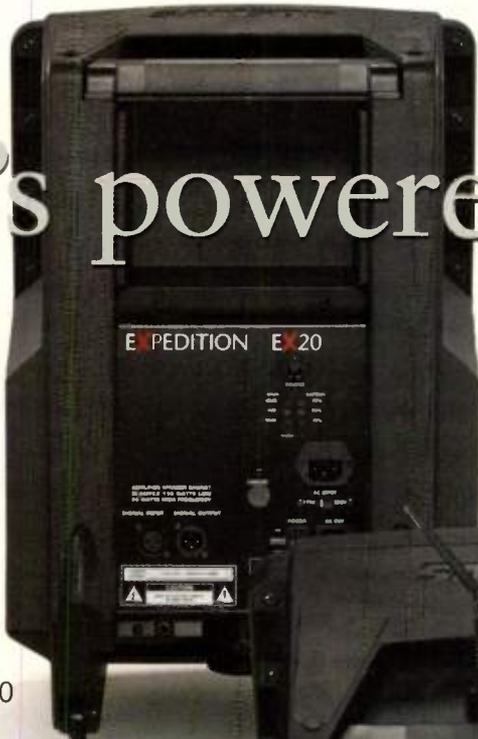


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sell it for ten times as much! [Laughs.]

The thing is that beauty is truly in the eye of the beholder, and [using] the right tool for the right job is all that I'm into. I remember Stevie Ray Vaughn telling me that he never sounded better than when I recorded him. I would think to myself, well, it's Bob Clearmountain and David Bowie and Nile Rodgers in the Power Station — what a really great day, brother! With a great band and a great song and a great vibe — hey Stevie, I think that had a lot to do with it! Yeah, maybe it sounded better than some of his other stuff, I don't know. But it was a hit, and hits always sounded good.

I don't mean to downplay the technical aspects of it because, yeah, it did sound great and it had a great vibe, but Bob Clearmountain is fabulous. Some of my best records have been done with Bob. I started with Bob — my first record was done with him — and a person knows who you are, and in turn you hook up again and you do something really great, based on your growth and their growth and where you are at that time. And nothing is too wacky — you'll try anything: "Hey, wow, you see those room mics that are up on the ceiling? Let's see what happens

when we put them halfway down the room and we put the amps face down or..." You try anything to get the right sound and the right vibe for the record.

So, these days, to record guitar, you're generally taking the direct signal and then using Amp Farm?

I hate to say it, but that's generally what I'm doing now.

More often than actually re-amping the signal?

Yeah, that's really the deal now. And the thing that I really love about that is, when I take it direct, I really hear the character of the guitar. Then, after I've done a performance that I think is the right performance, I can sit back and say, *now* let's try different amplifiers. That's an amazing sense of freedom to me. In the old days we used to do some of that — we would record pretty much direct, and then re-amp it, send it out into the room into amps. But I find that, in today's world, some of the other stuff that I'm picking up along the way, I'm not so thrilled about. Just the fact that I'm sending my signal along a journey before it gets back to my ears, there may be things that I don't particularly want. And when I'm fool-

ing around with plug-ins, I find that it's a new set of sympathetic stuff that comes along with each device now. There's some new bull that we have to deal with.

Only now it's a model of sympathetic stuff.

[Laughs.] Yeah! But I'm quite impressed with a lot of the gear that I've been using lately. Right now, you've just caught me at a point in time where I'm really discovering the quality of my instruments, pure, without amplifiers. What's great for me is that I can now interpret the music based on it being a very clean sound, which also makes me do more with my hands. Whereas a lot of times, when an amplifier is doing its thing, you play based on what the amp is doing — you can't help it. Say you plug into a stack of Marshalls. You're going to start playing "Foxy Lady" and you start dive bombing, doing an Eddie Van Halen solo or playing "Stairway To Heaven." You know, you can't help it! Me, I'm always playing "Ramble On" or something. But when I'm playing clean, I'll find that more of what I'm doing artistically is here. [Gestures with hands.] Then I can amplify that and go, "Wow, go check that out." So that's just a phase I'm in right now.

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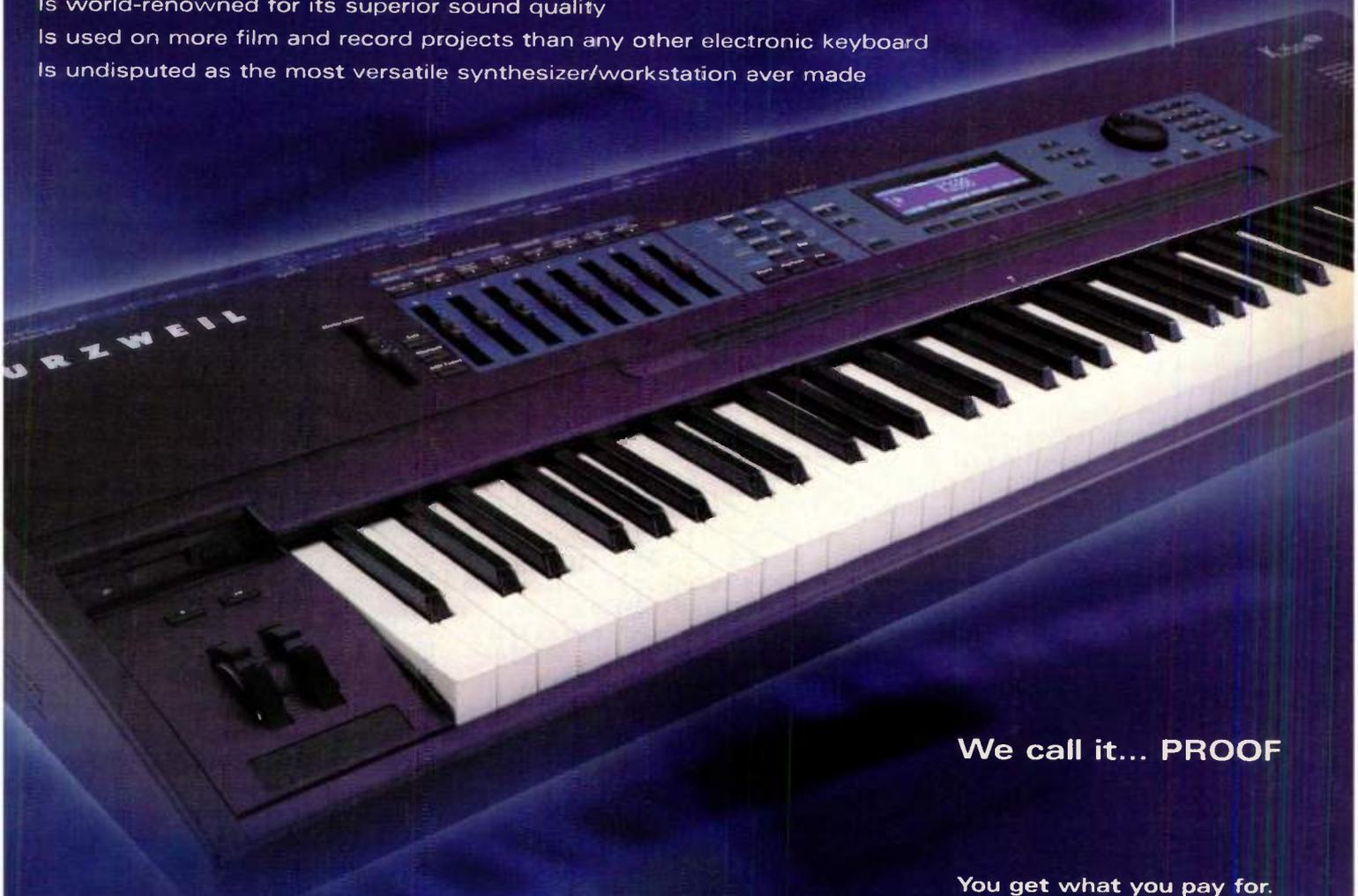
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What's your usual signal path for DI-ing guitar?

It all depends on the record and on the song and the guitar. I have a million DIs that I've been using from the beginning, but, now that I'm recording to hard disk, I use a little Neve sidecar that adds just enough warmth to take the edge off the digital converters.

I still have an old Countryman DI that I love, and it sounds great. I also have a custom-made one from the Power Station that's unbelievable; it sounds like what my Strat sounds like to me.

Do you find that different DI boxes complement different guitars?

Absolutely. And they complement different songs. We pull them all day long and check them out. I come from the school where, even if the band uses one drum kit for the whole record, I want it tuned right for each song.

We'll change the heads or tune it differently, all that kind of stuff, in order to create a different vibe. Sometimes we change the beaters — all sorts of stuff. It all depends on how those frequencies are responding to the key of the music, to the pulse of the music. Every record is different, every song is different, every tape is different. If I think about how many times I've recorded a song and it felt fantastic and I ran in and listened to it, only to go, "Ahh, man, the bass drum is detuned, now we've got to do it again." Now, with modern technology, we'll just go, "Forget it — we'll just key another one."

One of the hardest things for people working in project studios is knowing when the record's done; knowing when enough is enough or when they haven't done enough to complete it.

That really is an art in and of itself. I've been very, very fortunate in that, more often than not, I know when a record is done. Even when I get pressure from a record company, if I really feel that it's done in my heart, I won't succumb to the pressure; I'll just say, "No, I think it's done. Why don't you go test it and see what the people think?"

"Like A Virgin" is a case in point. It was very simple, and it really wasn't any more fleshed out than a demo might be, yet you knew it was done.

Well, there was a little bit of a fight there, but we stuck to our guns and ultimately won, and won big time. That Madonna album is

a very simple album. You know, it took me a long time before I got to 48 tracks. I was able to do everything on 24 tracks for a long, long, long time, and the records still sounded full. I did the Madonna album in 24-track, and, on "Like A Virgin," I didn't even fill it up, so it wasn't like I didn't have enough tracks — I had more than enough for that song. The same thing with "Material Girl." Everything on that album was very sparse. But it doesn't sound like it's not enough — it's done. Same with the Chic records.

I actually miss those types of records,

having to figure out how to get all that music on those limited number of tracks and having to do a great performance right now because you won't get a chance to fix it later on. It's got to be brilliant, and it's got to be in the pocket, and it's got to groove. And when one person makes a mistake, you go, "I guess we've got to keep it because the rest

of it works — oh, leave it in there." I love the [Bill Haley] record "Rock Around The Clock." The saxophone player goes through the riff before the rest of the band and, to me, it's so clearly a mistake, but they left it because the rest of the record is swinging.

For all the technological advances of the last 20 years, do you think records today sound better than they did 20 years ago?

No, absolutely not. Because for whatever we've gained in technical superiority, it makes us not necessarily work as hard. And unless you're really into the music business, it's hard for people to see it. We could use film as a great example. With all of the technological advances that they've made in the optical world, does the latest *Star Wars* look better than *The 39 Steps*? I'm not so sure about that. The fact was that we had to overcome all of those problems that the equipment gave us, and the net benefit of overcoming all of those variables was an artistic statement in and of itself. In the old days, we all used to play together in the same room, and I realize, after going back and listening to some of these records, that there was a blend and a vibe going on in that room that, to me, translated into that record.

The old restrictions in technology forced us to do things right. It forced us to have to make decisions. It forced us to spiritually be so in tune with the other people that magic had to happen. It made you step up to the plate, whereas now, when I go to play on

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someone's record, I feel uncomfortably free — and I almost hate that. I can actually play on a record all day long and do ten different solos and take all these different approaches to the rhythm and all this kind of stuff. And then the producer has to look at all this work like a film — they have to go back and edit and figure out which bits they want to use. Whereas in the old days, when a person hired me to work on a record, I had to get it right, right there. You had to play great, you had to be smokin', and there was no way that they could fix it and make it better.

When I played on Michael Jackson's last record, I knew what they were going to do, so I just said, "Hey, Michael, here's like a billion ideas. I'm going to play all this cool sh*t, and you guys go off and do it." So I didn't have to write it, so to speak. I didn't have to give them *the* definitive, perfect, guitar part; I gave them *lots* of definitive, perfect guitar parts, and they decided which ones to use. That's weird to me. Once you're unlimited, you'll never play that same way — you'll just go on and on and on and on. It's like the ultimate jazz person's fantasy: "You mean to tell me I'm going to solo for the rest of my life, and you guys will think it's great?"

Having infinite options also means you don't have the pressure on you, which means that you won't necessarily work as hard as you would if you knew you had just two takes in 20 minutes to get it right.

You can't help it. You see, I grew up in the days of, time is money — as Madonna would say, "Time is money, and the money is mine." And I like that, I love that.

You had a limitation of tracks, too. You were lucky if you had two tracks and you could do an alternate take.

You know what people do now when they want me to overdub on a record? They'll send me an album with a mix, and I have like 22 open tracks of guitars I can put down. So now you guys are going to figure out what my part is.

What advice would you give to the reader out there whose goal is to be the next Nile Rodgers?

I really think that my experience is based on my life. That means I come from being in a band, a cooperative collective of individuals that come together to do one thing. And, unfortunately or fortunately, that



colors my records. That's the filter through which my musical ideas pass. And I look at the world like that — to me, that's what you've got to do.

That's not to say that other people who aren't from bands — people who are engineers or tech heads or even just solo players — don't make valid and great records and even better records than mine. That's fine — that's a person's opinion — but that's why

my records have a sort of organic feel, if you will. Because it's based on a salad — it's based on a meal; it's definitely not based on one thing. You've got to mix it all up together or else it doesn't taste right.

You know, certain people in any band are always better technically than others in the band, so that means that the people who aren't as

proficient on their instruments have to support the better technical people. You've got to blanket around them so that the technical people can shine. That's what a band does, and if you have a spectacular drummer, then everybody's got to lay off. And if everybody is super technically proficient, then you get one of those really cool bands that do great stuff. You get an Earth, Wind & Fire, you get a Return To Forever — a band that makes hits but is interesting to the ears technically.

So you're saying, get as many dif-

ferent musical experiences under your belt as possible.

That's exactly what I'm saying. The more you know, the greater the palette of colors you have to choose from. You have to study the information and equipment and songs that have come before us, because each one of those is a project in and of itself. When Bowie and I did *Let's Dance*, we got a pile of records and we sat down and studied them. They were from all different areas of music: We listened to the *Pink Panther*, and we listened to Cab Calloway; we listened to the Beach Boys, and we listened to the Beatles. We just took licks from all over the place and stuck them in. It wasn't samples — it was ideas, it was licks, it was stuff. We were superimposing all different parts of pop music and culture. David would say obscure things like, "Let's not listen to anything that's been played in the last 20 years; let's act as if the blues had never been invented." [Laughs.]

I had never done that before. People had told me stories about them doing that with my records, but I never did that with anyone else's records. Up until *Let's Dance*, every musical idea came from my memory. I never studied other people's stuff before I made my records. And now that I'm getting ready to make my next crop of records, I think I might try that whole *Let's Dance* philosophy again — listen to a bunch of different things and see if that inspires me to write riffs and play differently. Sometimes it's good to look back in order to get the inspiration to go forward.

This interview is excerpted from Howard Massey's new book Behind The Glass, soon to be available from Miller-Freeman Books.

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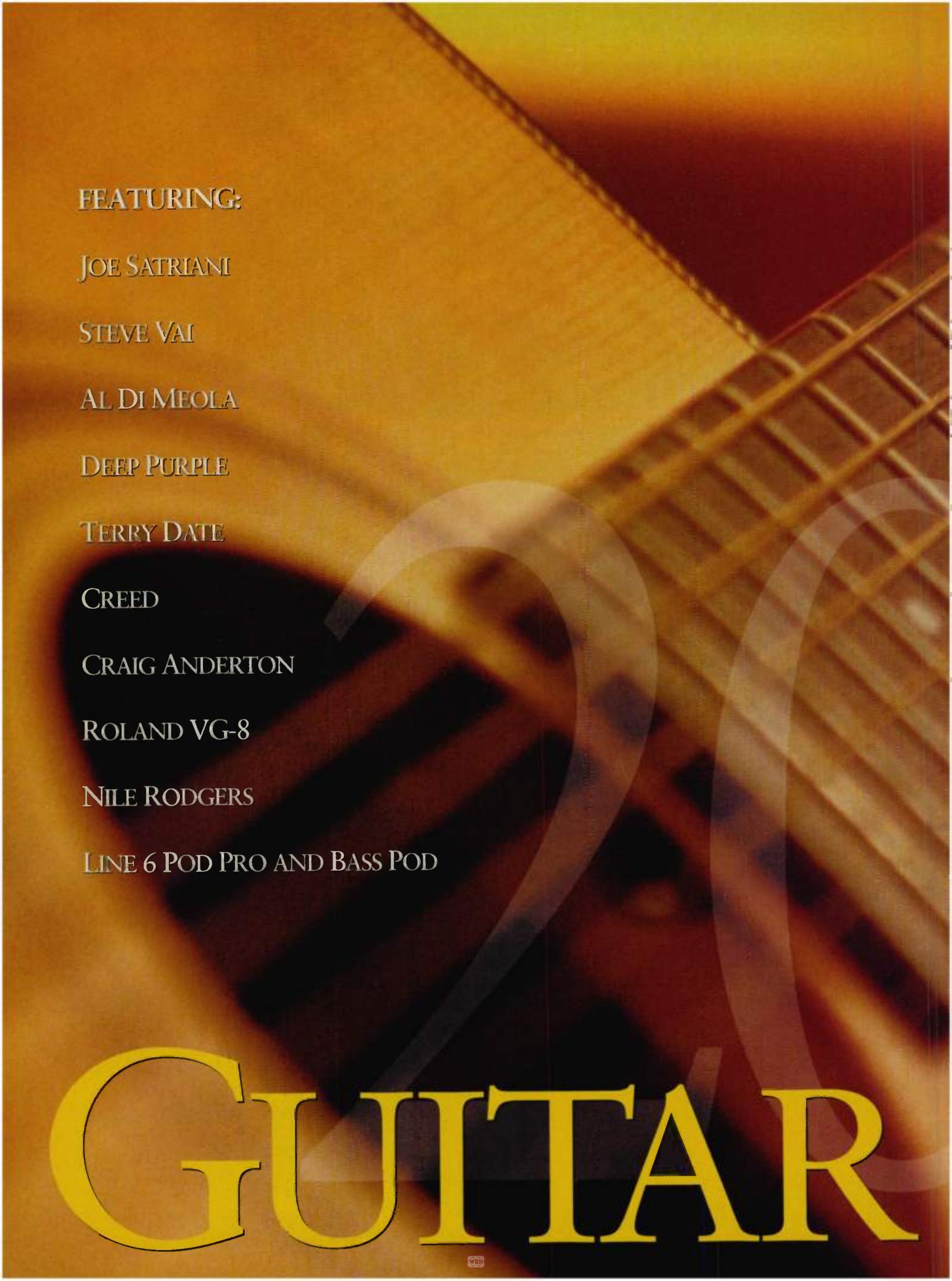
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TURN THE PAGE AND CRANK IT UP!

—MITCH GALLAGHER

SPECIAL



PHOTO BY JAY BLAKESBURG

ENGINES OF CREATION

JOE SATRIANI
AND ERIC
CAUDIEUX
COLLABORATE
ON A NEW
ALBUM — NO
MICROPHONES
ALLOWED!

Joe Satriani's latest album, *Engines Of Creation*, is a marked departure for the famed guitar hero. With its songs composed mostly on keyboards instead of his primary instrument, the project sees Satriani and co-producer Eric Caudieux taking a musical left turn into the burgeoning genres of the 21st century — or, as Satriani himself characterizes it, “Joe meets techno/trip hop, and melody/solo guitar meets the sounds and rhythms of electronica.”

In keeping with the trail-blazing spirit, Caudieux also decided to take a radical departure in recording technique. “No microphones

were used or harmed during the making of this album,” he proudly proclaims. Instead, a Palmer ADIG-LB speaker simulator (essentially a load box, but with controls that allow the resonances to be varied) took the place of speaker cabinets and microphones. Following what Caudieux characterized as a “sh*tload” of stomp boxes, the typical guitar signal chain went from amp head (Fender, Marshall, Bogner, Wells, or Peavey 5150 — a Fender Bassman was most often the head of choice) to the ADIG-LB, and, from there, into Telefunken V72 or custom Neve 1272 mic pres and a TubeTech CL2B compressor, and on into Pro

BY HOWARD MASSEY

GUITAR SPECIAL

Tools via stock Digidesign 888 A/D converters.

On some occasions (most notably the machine-gun rapid-fire guitar effect in the opening track "Devil's Slide"), a Hafler Triple Giant guitar preamp was used instead, dialed to the so-called "brown" setting, before routing the signal straight into Pro Tools. That particular riff, which Caudieux laughingly refers to as "one of the most horrible sounds you've ever heard in your life," was created by Satriani overdubbing the same highly rhythmic part eight times. "We just basically stacked them up, and, between each phrase, we'd paste a little silence in," Caudieux recalls. "It was just the sheer amount of guitars that make up that noise."

Satriani stresses that the decision to not use microphones was based entirely on aesthetic — not budgetary — considerations. "Time was never a consideration, only creativity," he comments. Similarly, the decision to compose on keyboards instead of guitar was a conscious effort to explore new musical areas. "It lead me away from guitar convention and certain idiosyncratic behaviors," he explains, "thus opening up the writing process to include more world-based music."

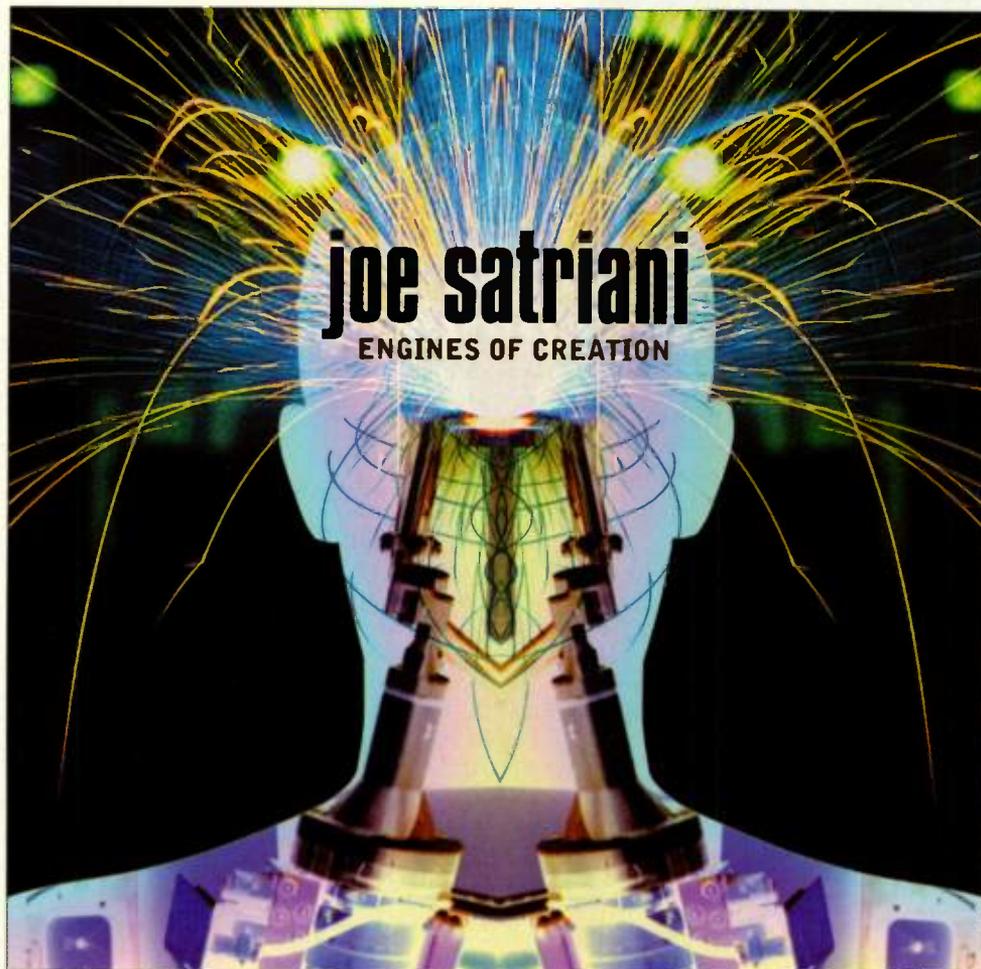
Many of the basic tracks — both audio and MIDI — were recorded by Satriani in his San Francisco home, using a PowerBook running Logic Audio. The files would then be e-mailed to Caudieux in his Los Angeles studio (Chateau FAF) where he'd transfer them into one of his two Pro Tools 24iMix Plus systems (one

running on a Power Mac 9600, and the other on a Power Computing PowerTower Pro, both with G3 400 MHz acceleration) for further tweaking. Plug-in processing abounded, with particular emphasis on Amp Farm, Lexiverb, Rectifier, D-Fi, D-Vinyl, and various DUY DSpider modules. The arsenal of stomp boxes included wah pedal and FullTone; Moogerfooger filter and ring modulators ("my favorite pedals in the whole world," Caudieux says); Digi-Tech Whammy pitch shifters; and Mutrons and Qtrons. (Both Mutrons and Qtrons were used in series on the track "Attack" to create a uniquely tiny, almost Munchkin-like guitar sound. "The trick," Caudieux explains, "was to play it extremely lightly, because otherwise everything would just go into stupid resonance.") Other key equipment used on the album included a Yamaha 02R digital console and an Otari UFC24 universal format converter.

Many of the guitar parts are so processed that they actually sound like a guitar synth, but Satriani is firmly opposed to this particular area of technology. ("MIDI guitar sucks," he states flatly.) Instead, Electro-Harmonix Micro-Synth boxes

"I DON'T LIKE THE IDEA OF HAVING TO RELATE TO A COMPUTER SCREEN WHENEVER YOU PLAY OR LISTEN TO MUSIC."

were used to enable him to generate some of the more ultra-synthetic sounds on the album. More usually, though, extensive digital effects were applied to bend, fold, spindle, and mutilate the sounds in various ways. Caudieux recalls that there were, in fact, some parts that were so processed that they actually had to be played ahead of the beat in order to compensate for processing delays. Not that these hurdles tempted Satriani to return to the analog world: "Issues with digital recording are as numerous as with analog,"



ERIC CAUDIEUX'S TOP TEN GUITAR RECORDING TIPS

1. Use plenty of stomp boxes to get the sound you want at the source. Sure, sometimes they're noisy, but they're designed specifically to handle guitar tones so they'll probably do a better job than any line-level outboard processors in your rack.

2. Try using speaker emulators (load boxes) instead of speaker cabinets and microphones. These plug directly into the speaker outputs of your favorite guitar amp head and provide a line-level signal that can be directly input to your recorder.

3. Try applying both a low-pass and high-pass filter, each set to the same frequency. This has the effect of acting as a band-pass filter and can make a guitar sound so frequency-limited that it really sticks out.

4. To add extra sustain to high notes, play the part an octave down and use a pitch shifter to raise it an octave higher. Caudieux used this trick effectively on Joe Satriani's electric sitar in the track "Slow And Easy" on the *Engines Of Creation* CD.

5. Amp Farm works best on clean sounds. "It really does not work on distorted sounds," Caudieux observes, "unless you're looking for something that will crap out on you, a sound that will just break up."

6. Try pitch shifting the reverb send. On the track "Until We Say Goodbye," Caudieux took Satriani's lead guitar and sent it to a pitch shifter set three cents down on the left side and three cents up on the right side, and used that to feed into the reverb, without any of the dry signal. "What you hear," he comments, "is this massive ambience thing that just covers the whole track."

7. Multiple overdubs cause a different interplay between harmonics than simply copying the same track and processing each copy differently. Of course, this means that you really need to be able to play your axe, but the results, as you can hear on the track "Devil's Slide" (where Satriani overdubbed the same rapid-fire part eight times), can be spectacular.

8. Tuning is important! Lots of out-of-tune guitars — heck, even one of 'em — can make for a very unpleasant listening experience, even though the average listener may not be able to identify what it is about the track that they don't like. On the other side of the coin, as Satriani observes, "Tuning is actually a very creative area of music that can be toyed with for a variety of musical effects."

9. Maintain a good sense of dynamics. You don't always have to be shredding those strings — playing exceptionally lightly (like Satriani does on the lead to "Attack") can create a unique sound that can really grab the listener's ear.

10. Use effects for purposes other than what they're designed for. One of Caudieux's favorite Pro Tools tricks is to apply the DINR noise reduction plug-in to a sound after deriving a noise signature from a completely different sound. "By pulling out something that doesn't exist in there in the first place, you create a different vibe," he explains. —Howard Massey

he notes philosophically. "You just get used to the quirks and move on."

The one song on the album that breaks the techno-mold

is the melodic, almost AOR "Until We Say Goodbye." Recorded conventionally (Neve Capricorn to Sony 3348) at New York's Avatar Studios and featuring guest drummer Anton Fig (of *Late Show* fame), the track is vintage Satriani, even though he somewhat dismissively explains the reason for the change of venue as being "the record company wanted a rock re-mix of their favorite song." But, even here, technology rules. Although the main melody is played on a '58 Strat plugged into a Fender Bassman amp turned up to the proverbial 11, the sound of his beautiful, lyrical solo was created down on the Amp Farm ("It wasn't a pre-set, but I couldn't tell you what settings we used — it was just something that we tweaked up," Caudieux recalls).

The final mixes for *Engines Of Creation* were done directly in Pro Tools without the use of any external control surface ("Besides pushing a fader and assigning inputs, I don't see the point," Caudieux says) and then transferred to DAT. The entire project was recorded in 16-bit resolution — largely to accommodate the guitar tracks Satriani recorded directly into his PowerBook using its onboard A/D converters — and took just four months to complete from start to finish.

Although Satriani regularly interacts with his fans through an unusually comprehensive Web site (www.satriani.com), he takes a balanced view of the impact of the Internet. "I don't like the idea of having to relate to a computer screen whenever you play or listen to music," he comments. "[Technology] has made it easier for a new artist to break in today, but harder to stick around." These may be prophetic words, but something tells us that Joe Satriani's going to be sticking around for a very long time.

Howard Massey heads up On The Right Wavelength, an audio consulting company, as well as Workaday World Productions, a full-featured project studio. His latest book, Behind The Glass (Miller-Freeman Books), is a collection of interviews with record producers.

MANY OF THE GUITAR PARTS ARE SO PROCESSED THAT THEY ACTUALLY SOUND LIKE A GUITAR SYNTH, BUT SATRIANI IS OPPOSED TO THIS AREA OF TECHNOLOGY.

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THE MAKING OF "NOAH'S ARK"

FORTY DAYS
AND FORTY
NIGHTS WITH
STEVE VAI

Okay, so it didn't actually take forty days and forty nights, but the story behind Steve Vai's contribution to the track "Noah's Ark" on drummer Greg Bissonette's solo album *Submarine* is nonetheless a fascinating one.

Released on Vai's label, Favored Nations, *Submarine* is an eclectic collection of songs written by Bissonette's brother Matt (who also plays bass on the album), ranging in style from be-bop to pure pop, from funk to blues, from Latino to Indian. "Some labels tell you that albums have to be thematic, that every song has to be exactly the same kind of style," Bissonette comments. "The great thing about being on Steve's label is that his attitude was, 'Just take a musical polaroid of where you are in your life right now — diversity is cool.'" To that end, each track features a different guest guitarist (including Vai's former teacher Joe Satriani), performing a song written

specifically with that player in mind.

"Noah's Ark" pulls off the neat trick of living in complex time signatures (7/8 alternating with 4/4), yet being eminently tuneful. Bissonette recalls, "One of the reasons I thought this track would be great for Steve is that he played for a long time with Frank Zappa, so he's very comfortable playing in odd time signatures. He plays in 7 and other odd times just like he's playing in 4/4, which is no easy thing." Vai's secret? "You want it to sound natural; you don't want it to sound like you're counting. It just takes a little time. When you're playing in an odd meter and it's flowing in your brain, you find yourself phrasing and speaking sentences that you would never normally do in a 4/4 section, and it's really nice."

Working from charts, the brothers Bissonette first recorded the bass and drum backing tracks at Mad Hatter — Chick Corea's former

BY HOWARD MASSEY

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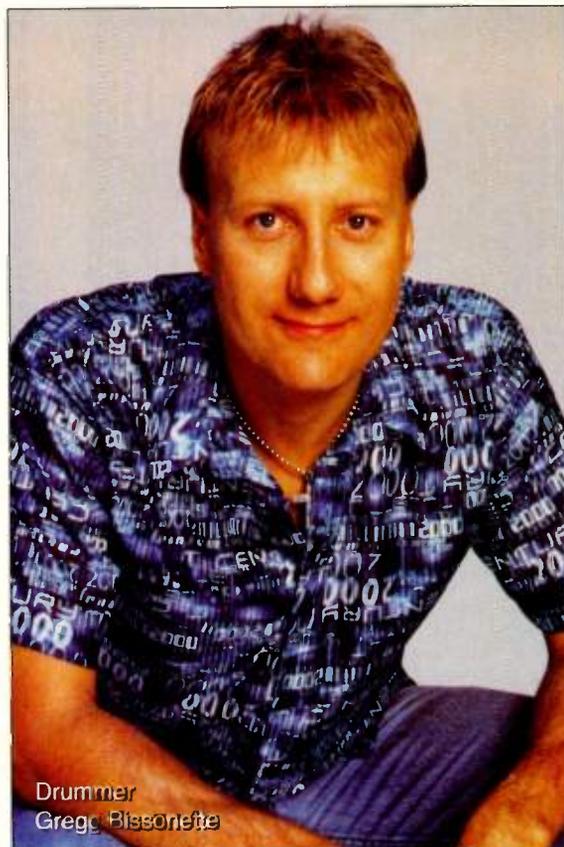
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studio in Los Angeles. Tapes in hand — along with a demo of the tune — they trekked to Vai's studio in the Hollywood Hills (The Mothership) to add the guitar overdubs. All recording was done strictly in the analog domain ("I just love the warmth of it," Bissonette says), without any editing or digital restructuring. "A lot of times I enjoy recording on Pro Tools when I do sessions for other people, but I just wanted to make this album a complete thought, a straight-through performance," he comments. "Plus, my brother is a really song-oriented songwriter. Many musician albums are just constant jamming, and you don't really hear melody or song form. My intention was to make an album that people who aren't musicians can enjoy. That's why we placed such an emphasis on melody and song structure; there's always a hook."

Unusually for such an accomplished instrumentalist, Vai is also a skilled recording engineer. Bissonette marvels at his work ethic: "He sets up his guitar sounds himself, he records the guitar himself, he does his own punching, you name it." Vai usually begins by plugging his axe — a signature Ibanez Gem — into one or more stomp boxes, most often including a Roland DS-1. From there, the signal is passed to a Carvin Legacy amplifier (designed by Vai; is there *anything* this guy can't do?) and a variety of speaker cabinets.

Vai cheerfully acknowledges that the miking technique he used on "Noah's Ark" originated with famed Jimi Hendrix engineer/producer Eddie Kramer. "Basically, it's three microphones on one speaker, with careful attention paid to phase. I'm a real nut about phasing, and I get really neurotic and anal about checking all the different sources that come in to create the one sound. For 'Noah's Ark,' I close-miked with three mics: a [Sennheiser] 421 — set to the 'speech' setting, so it's got all the bottom end — a [Shure] SM57, and a Beyer M160, which is a real dark microphone. Each

microphone has a distinctly different sound, and if you blend them properly, it creates the kind of sound that I like. The Beyer is really good for the bottom end, whereas the '57 is obviously the ice pick in the forehead. [Laughs.] The 421 is just a great overall sound absorber. I never bring those mics up at the same level, though, because there is cancellation and you can lose a lot of the delicate overtones that create the sustain on the sound. Then I'll occasionally put an [AKG] 414 about three feet in front of the amp, just for a little body. I also mic the room with either two 414's in the corner or a C24; on 'Noah's Ark,' I used a C24



Drummer
Greg Bissonette

in the center of the room. Not only are they fantastic, warm tube microphones, but, the way they're configured, you can capture different dimensions of the room.

"Usually I'll bus the three close mics to one stereo channel," he continues. "Sometimes I'll take the Beyer and pan it either hard left or at 9:00 and the other two mics at 2:00. The stereo room mics will be put on another two channels. It's all about creating a sound. I was a big fan of Jimmy Page when I was growing up, and his guitar sounds and his productions never sound like you just put a microphone in front of something; he always used dimensionality to create his sounds. So sometimes I'll delay the room mics a little bit; I think in this case I delayed them by about 20 msec each. Often I'll take that 414 that's three feet back and add a little bit of it in with some phasing. And then, if I really want to create an odd sound, there are some stomp boxes I end up using, like an [MXR] Phase 90; I always was in love with those little orange boxes.

"I'll always bring outboard effects up on the console in a send-return configuration because I find that's the cleanest way to hit them; if you access a digital effect through the ins and outs of your amplifiers, you're just going through a series of converters. I'll take a little bit of the composite sound once it's up on the console and send it to an effect like a digital delay — on 'Noah's Ark,' I used an Eventide H3000. Usually the delays are split hard left and right, with one side set to a half note delay with about 12 or 15 percent feedback, and the other side set to a dotted quarter. I then

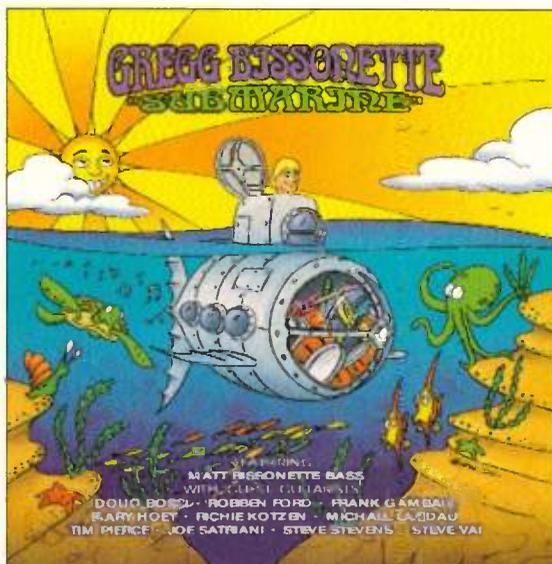
"IT'S ALL ABOUT CREATING A SOUND. I WAS A BIG FAN OF JIMMY PAGE WHEN I WAS GROWING UP, AND HIS PRODUCTIONS NEVER SOUND LIKE YOU JUST PUT A MIC IN FRONT OF SOMETHING."

GUITAR SPECIAL

printed the effects returns [to separate tracks], because I knew I wasn't going to be there for the mix."

Vai's flair for orchestration is apparent on "Noah's Ark," where he creates a veritable wall of guitars, each with a distinctive sound. "Usually what I'll do is create a dual mono rhythm track, overdubbed left and right, and there will be a little bit of a different effect on each one. I'll try to make the tracking of that real tight. Then I'll add a couple of tracks' worth of riffs to give the lead line a little kick. For the melody line on 'Noah's Ark,' I used a [DigiTech] Whammy pedal for some of those really odd synth-sounding things; some of it's doubled, and some of it is just a mono guitar. But there are probably no more than four or five guitars playing at any one time.

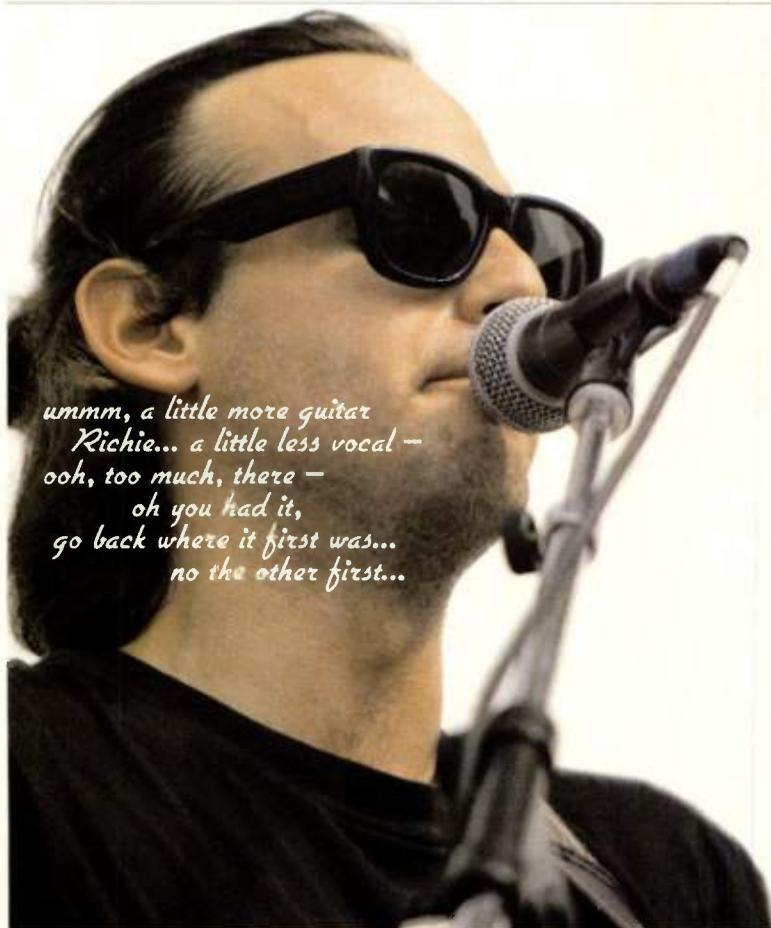
"The introductory funky rhythm was played through one of the new Fender Performer amplifiers. I was playing a Strat on that, and I went directly into the front of that amp through an MXR phaser pedal. I took two mics — an M160 and a '57 — and I put them in front of the speaker, pitched at a little bit of an angle, with both mics positioned exactly the same. Then I also miked the back of the Fender cabinet, which is really a great way to add a lot of body and depth. As I said, I've done a lot of experimenting with phasing, and I've found that the microphone in the back has to be positioned so that it's an exact mirror image of the microphones in the front; if you move it around even a little bit from that position, you're not going to be able to get it to phase. So if the microphones are pitched at 10 or 15 degrees in the front, then



they have to be pitched exactly that in the back, but going in the opposite direction. And they've got to be hitting the back of the amp in the exact position that the front of the amp is hitting, or else you're just going to get a direct-miked thin type of sound."

Though the lead line in "Noah's Ark" sounds suspiciously like slide guitar, Vai insists that's not the case:

continued on page 134



*ummm, a little more guitar
Richie... a little less vocal —
ooh, too much, there —
oh you had it,
go back where it first was...
no the other first...*

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When recording Al Di Meola, we generally have a standard setup that works well for us, refined over many years by his experience and sharp ears. If we aren't working in a commercial room, Al has a comfortable home studio that is continually updated technologically, and myself and fellow engineer Spyros Poulous will bring in some of our own gear for individual sessions as needed.

Our setup for acoustic guitar recording usually consists of the following: A pair of Schoeps CMC-5 cardioids in an X-Y configuration

about five inches from the neck and soundhole, and a pair of Earthworks TC-30K omnis about three feet apart, set back about three feet from the guitar. On the console, the Schoeps are usually panned with one hard left or right, and the other at either ten or two o'clock, creating a warm, thick sound. The Earthworks omnis, when mixed in hard left and right, add a beautiful top to the guitar, as well as a nice wide room ambience. The four channels are blended according to the sound that is needed for each song, and, when layered guitars are involved, the

BY RICH TOZZOLI

GUITAR SPECIAL

mix and blend are normally made tighter to help the parts fit together and to avoid conflict.

Signal path is important when getting a great acoustic guitar sound. We go straight from the mics, using all Monster Cable, into four channels of Demeter VTMP2B preamp. The multitracks, which have been Alesis M20's at 20-bit/48 kHz resolution, are fed directly from the Demeters. We don't record or mix the guitars with any compression, which is slightly unusual, but we feel we get great results without it. Obviously, great guitars will help as a starting point for great sound, and Al's technique also allows him to get the best tone out of his own instruments. His primary recording guitars are a beautiful Conde Hermanos classical and a 1949 Martin D-series steel-string with a sound that literally jumps out of the instrument.

He likes to work with a lot of reverb, and his favorite is the old Lexicon 200, a slightly noisy but warm-sounding unit, probably due to its eight-bit technology and old filters. We have not been able to duplicate the sound of the 200 with any other reverb, but he has warmed up to using the clean TC Electronic M3000 as of late. For chorus, we use the TC Electronic 1210, and the TC-2200 for any delays. As I mentioned, the sound has been refined over many years, and this combination of gear, along with the vintage Soundcraft analog console in his studio, always yields great results.

We recently started working with surround sound technology, and the approach we use for stereo translates amazingly well to multichannel work. When recording the *Winter Nights* record (Telarc), we planned from the beginning to do some surround mixes. We recorded as we normally would, with the Schoeps and Earthworks mics, so the technical approach was not really different, but mentally I knew I would use the spaced omnis in the surrounds. Having mixed several surround projects before this record, I knew what elements would generally work using the surrounds, center channel, and subwoofer. When it came time for the 5.1 mix, the Earthworks sounded great in the rear surrounds, complimenting and filling out the Schoeps, which were mixed in the front left/rights. Some of the guitar lines were mixed wet in front and some dry in the surrounds, furthering the dramatic effect. Again, the approach depends on the material and how far you want to go, but we always kept the focus of the guitar in the front left/right speakers. Al also uses a lot of exotic percussion in his work, and some of the deeper drums sounded amazing in the subwoofer, although you have to be careful about the amount of information you put in there.

Al carefully orchestrates his guitar lines, and his music lends itself to multichannel production. It is certainly easier to fit all the parts of a Di Meola recording into the sonic space of five channels versus just two! While we were recording and mixing the stereo version of the record, the whole time I was thinking multichannel; I basically had the surround mixes "done" in my head when it was time to actually sit down and physically do them. Since Al missed the days of quad, he's excited about the future of guitar in surround. This is really just the beginning of where we are going to go.

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RECORDING DEEP PURPLE IN CONCERT WITH THE LSO

VOLUME WARS,
METRONOMIC
TIMING, AND
WHY IT'S HARD
TO PLAY CELLO
IN TUNE WITH A
ROCK BAND

Back in 1969 — way before the members of Metallica ever dreamed of performing with the San Francisco Symphony Orchestra — an up-and-coming rock band by the name of Deep Purple recorded (band member) Jon Lord's *Concerto For Group and Orchestra* with the Royal Philharmonic Orchestra. At the time, even members of Deep Purple didn't realize quite how radical a concept they had created. Unfortunately, subsequent to the recording, Lord's manuscript for the piece was lost and never again found. Years later, a young Dutch composer by the name of Marco de Goeij approached Lord in Rotterdam prior to a Deep Purple concert. Goeij informed Jon that — knowing the manuscript had been lost and was likely never to be found — he had transcribed the work through endless listening of the recording

and viewing of the video tape. After filling in some blanks to Goeij's transcription and making a few tweaks, Lord's manuscript for the piece was once again whole. Acknowledging that 30 years of experience in writing, performing, and recording music had matured them as musicians, Deep Purple decided to re-record *Concerto For Group and Orchestra* once again live at the Royal Albert Hall, this time in conjunction with the London Symphony Orchestra.

Can You Guys Turn It Down A Bit?

Deep Purple bassist Roger Glover informs us that one of the biggest challenges in recording the London Symphony Orchestra simultaneously with Deep Purple was the "great disparity in volume levels between the orchestra and the band.

BY STEVE LA CERRA

GUITAR SPECIAL

That's a problem we faced 30 years ago, and, even after all these years, we still haven't come up with a solution. To really record an orchestra well, you need the acoustic sound of the instruments. You can use electrical pickups, but they don't sound particularly natural — so it's necessarily a compromise in the way the band is playing and in the way the orchestra is playing."

To help reduce problems stemming from the volume of the band, conductor Paul Mann was situated just behind the Deep Purple backline, allowing the orchestra to be as far behind the band as was physically possible in the Royal Albert Hall (the orchestra was elevated to maintain sight lines). Deep Purple band members made additional concessions to prevent a battle of loudness. When performing with Deep Purple, Glover normally uses four Ampeg SVT cabinets powered by two Ampeg SVT heads (each amp driving two cabinets). With the four-cabinet setup, Glover angles the outside cabinets slightly toward the center of the stage. But, for this recording, Roger modified his rig to a single SVT head and a single SVT cabinet lying on its side. Using a single cabinet helped reduce Glover's overall stage volume, while laying the cabinet sideways helped maintain sight lines between the band and the orchestra."

Roger's bass was routed through a volume pedal, a DI, and then to the SVT head; he typically records the DI in addition to miking the amp, though he doesn't express a preference for any specific microphone. Glover generally sets up a single sound for the show, and feels "the DI is the best place to get a pure sound. That's something an amp can't do. I like my sound to be commensurate with the kind of music we're playing. If we're playing a hard song, I want a hard sound — a sound that means business — rather than a polite bass sound. Everything should be as simple as possible and not one bit simpler!" he jokes. Glover does admit that, during mixdown, "those big, old 1950's compressors do wonders for the sound. Pultec, UREI (I like that Fairchild compressor, too...) — whatever the studio has that they can spare after they're done with the other instruments!"

One thing you will not find in Glover's bass rig is a wireless system. "I used to have a radio pickup," he explains, "and I'd walk out into the audience during soundcheck and play. At first I thought it was great, but it was probably the worst thing I could have ever done. When you're out in the hall, there's a delay, and somehow I'd get this disembodied feeling. Also, you're hearing the PA's interpretation of your sound. I don't usually like what I hear — I'd rather be on stage and hear my amp."

Other concessions to the volume situation included placement of Plexiglas panels around Ian Paice's drum kit as well as paring down Steve Morse's guitar rig. Normally the guitarist uses a total of six 4x12 cabinets: four 4x12's powered by one head for the dry sound (usually a Peavey 5150), and another two 4x12 cabinets powered by another 5150 for the wet sound. According to Morse, the four 4x12 cabinets are really for dispersion of his sound across the stage. For the recording session at The Royal Albert Hall, Morse shaved the rig down to "one 4x12 for the dry sound and another 4x12 for the wet sound. I wasn't that concerned with the dispersion this time. I wanted a minimum of gear blocking the bottom row of cellos and violas. Instead of putting the heads on top of the amp, we put them down on the floor to keep sight

lines open. I turned the cabinets a little bit away, and moved them as far from the conductor as I could, so that he wouldn't get any of the low end that radiates from a closed-back cabinet. I didn't want him to get trapped in that bubble. Of course, I turned down the master volume — which doesn't give you the greatest tone in the world, but it was necessary. Ordinarily my master volume is set to 7, and that's where the rig starts to break up nicely. I had no choice. If I had played at my normal volume, I would have been too loud."

Steve plays an Ernie Ball Music Man guitar ("The Steve Morse model, oddly enough!" he laughs) and plugs straight into the amp. As far as wireless versus cable, Morse says he's "...never heard a wireless that didn't produce the effect of a compander or compressor/expander circuit. It takes away from the dynamics of the guitar. I often use the low end on the volume knob — I'll turn it from '10' all the way down to '2' just to get that tiny bit of signal from the pickups that'll give me a clean sound even though I have a distorted setting on the amp. You can't do things like that very well with a radio system."

Morse does use effects, but they're patched in a rather unconventional manner. "I plug the guitar straight into a Peavey 5150 head. This amp has an effect send/return loop with an on/off switch for the loop. But I don't actually use the whole loop — I only use it as a send with an on/off switch. Since each effect unit has an input level

THE STEVE MORSE GUIDE TO PA SYSTEM TWEAKING

During our conversations about the recording at The Royal Albert Hall, Deep Purple guitarist Steve Morse offered some insight as to how a live sound engineer might approach evaluation of an unfamiliar PA system prior to a gig. Here's what Steve had to say:

"One of the things I would say to every sound engineer is check out the PA system you're using before you begin EQing or even doing a soundcheck with the band. Plug a CD player into a channel (or two) of the board. Turn the channel EQ off or center it. Bypass the system's graphic EQ. Then go to the power amps — not the crossover — turn down the subs and the tweeters, and listen to the midrange. Almost every PA is set up to give the illusion of more volume by having the high end and the low end cranked up. Add the subs and tweeters into the midrange until you think it sounds balanced. Then, if you have to, use the graphic EQ. But, if at all possible — get the balance between the power amps sorted out first — you'll find you have fewer problems.

"I do solo shows where I sit on stage with my own mixer, and I'm sending a stereo out to the house. I have done this so many times that I can hear when something is out of phase, if the balance is off between the sides, or even if there's an extra tweeter on one side of the house system. Every time we have adjusted the system like I described — *every time* — the system sounds better. There is something that happens when you put a graphic EQ in line with the console and it's not something good. Somehow graphic EQs screw with the phasing and take away the impact, the warmth, and the realness of the sound. I can't describe it in technical terms, but it's something I can definitely hear and something we can avoid."



Drummer
Ian Paice

control, I usually 'y' the preamp output of the dry head to the inputs of two effects. Then I also 'y' the effect send output of this head to two more effect units. This gives me the option of turning off the send to two of the devices using the effect send footswitch — handy for sending only a specific chord or note to a very long delay or reverb — then fading that sound in with a foot pedal while the dry guitar is already on to something else.”

“I use several effects, like an [Eventide] Harmonizer H4000 and a Lexicon PCM80 for the long, complex, reverb-y sounds. When I get to the part of a song where I want the effect, I hit the footswitch to turn on the dry amp's effect send and

the dry signal goes to these effects. The effects have so much reverb that you'd hear the patch change if they were always on, but, by using the footswitch, the dry guitar is not always loaded up with the previous effect.

“I use two delays: a long delay of about 400 milliseconds and a short delay of about 13 milliseconds, both with modulation. There's also a loop delay of about three seconds from a Lexicon PCM42. That delay is locked in to a set time and I can just kick it in. The outputs of all the effects go to my pedal board, which basically works like a mixer. I have Ernie Ball volume pedals set up, and they pass the output of each effect into a little passive four-into-one box. The four-into-one box feeds the second amp, so now I have another amp and cabinet that is completely wet. All of the effects are set to wet only, so it doesn't take much from one of the Ernie Ball volume pedals to get the effect to a level where I want it.”

A Matter of Trust

Steve admits that there is a bit of a risk involved in this setup. “I have to trust the soundman to give me equal volume from both cabinets. We have a test before each show, where I set up a 400-millisecond delay on stage using both amps. I turn the wet amp up to where it sounds balanced with the dry amp — so that, when I hit a note, I'll hear the repeat through the wet amp at the same volume. Then the sound engineer is supposed to make that equal volume happen out in the front. It's a totally subjective thing, and subject

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GUITAR

to double-error, but it's the best method I have been able to come up with. My suspicion is that during solos they will often turn up the dry amp more than the wet amp. In times of chaos, just blame it on the wet amp!"

For compression on his guitar, Steve prefers the UREI 1176, LA4, or LA3's. On occasion he also uses the Valley Dyna-Mite, which he cites as a "really obvious compressor that's good for use as an effect. If we're doing a Deep Purple album, the studio usually has some trendy, old tube compressor, and those sound great. Sometimes I'll use the compressors built into a Neve board if they're working. Basically I'm looking for anything to soften the ugly high harmonics or filter that square-wave stuff a bit. The amp is already doing the compression. I always mess with different mics and mic placement, too. I learned a cool trick from one of the engineers I work with, where you set up a bunch of mics and plug them in. Don't mark the inputs they're connected to. Place them around the amp or have someone else do it. Then go into the control room, play, bring up the faders, and find something you like. Then use it! It takes away the bias of using a microphone because you know how much it costs."

Time For A New Pitch

After a single rehearsal, Deep Purple and the London Symphony Orchestra performed *Concerto For Group and Orchestra* (as well as other pieces) in front of an audience for two nights. The resulting CD (available from Spitfire Records: www.SpitfireRecords.com) is almost completely made up of material from the second performance. Glover reveals that "the only bit of serious fixing we tried was a spot where the cello was a bit sharp to Jon Lord's piano. The cellist was physically far away from the piano, so he couldn't really hear what Jon was playing. Ultimately we decided to bury the cello in the mix for that spot so that the tuning wouldn't be offensive."

Morse offers some insight as to why a string player might have a tough time pitching their instrument to the band: "One of the big problems when the orchestra plays with a band like Deep Purple is that the string players can't hear their own instruments and, thus, their pitch (that's why the band was set up in front of the orchestra — to help them hear themselves). They know the note positions on the neck of the instrument and can

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AND TUNES
LOW WITH
LIMP BIZKIT,
PANTERA,
WHITE ZOMBIE,
AND DEFTONES.

In the world of contemporary metal, Terry Date's name looms large. The producer has been behind influential releases by Limp Bizkit, Pantera, Prong, Deftones, White Zombie, Helmet, and Soundgarden among others. The man who has recorded some of the most angry, aggressive sounds ever made by humankind turns out to be a genial, gently spoken guy. Date first fell into the metal universe back in the early '80s, when he was a staff engineer at Steve Lawson Productions in Seattle.

"Around that time," he recalls, "Metal Church came in to do their [self-titled] first album. They liked the work I did, so they gave me a co-production credit — my first ever. It was the first heavy record I'd ever done. But it took off in an indie kind of way. So I started getting calls from a lot of heavier bands to produce their records. I'd never really thought about producing. I was always an engineer."

Date takes an unassuming, essentially documentary approach to recording metal. His engineering skills have stood him in good stead. He has successfully made the transition from the

grunge era to the new brand of extreme rap metal that currently rules the charts.

"Around the same time I did that first Metal Church record, I also did Sir Mix-A-Lot's record [*Swass*]," says Date. "I knew about as much about rap at the time as I did about metal. It was just another project that came through the door. But I learned. And I think it's funny that, 20 years later, I'm doing bands that are sort of a combination of those two things."

When *EQ* caught up with Date, he had just completed the Deftones's chart-breakthrough album, *White Pony*, and was in the midst of coaxing Limp Bizkit singer Fred Durst through a case of writer's block — part of Date's job as producer of Bizkit's much-anticipated new album, *Chocolate Starfish and the Hot Dog Flavored Water*. This month we'll discuss Date's approach to capturing heavy guitars. Look for Part II next month, when we'll be discussing drums, vocals, and more.

EQ: Sonically, do you see a connection between grunge and the new metal?

BY ALAN DI PERNA

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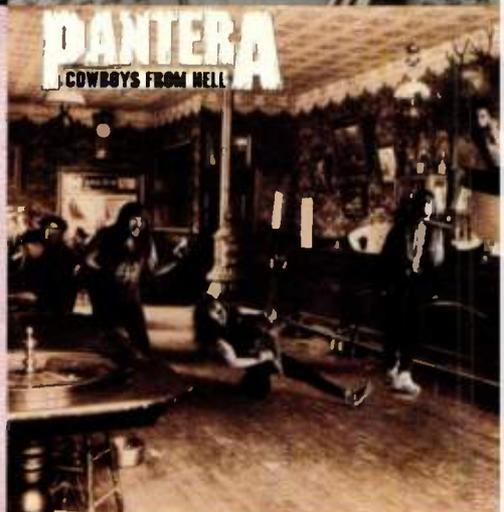
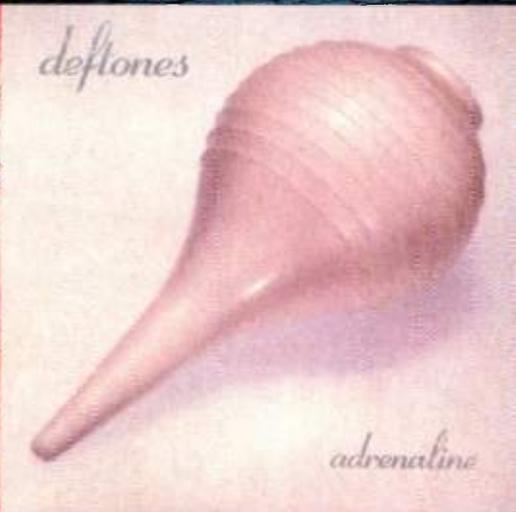
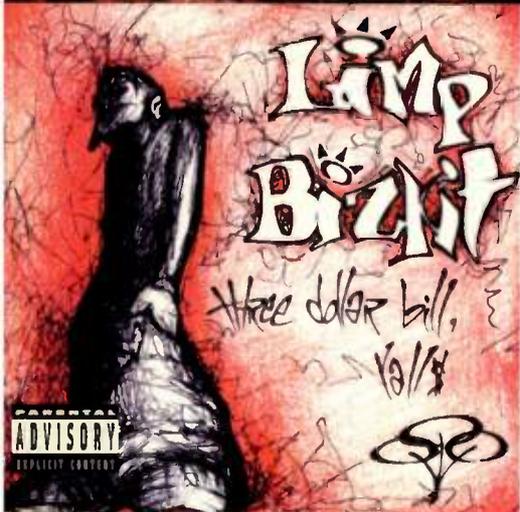
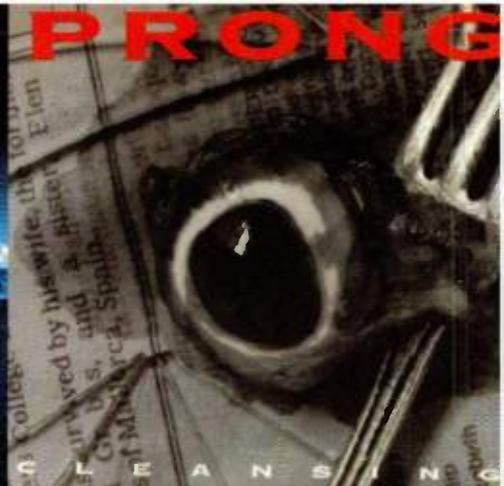
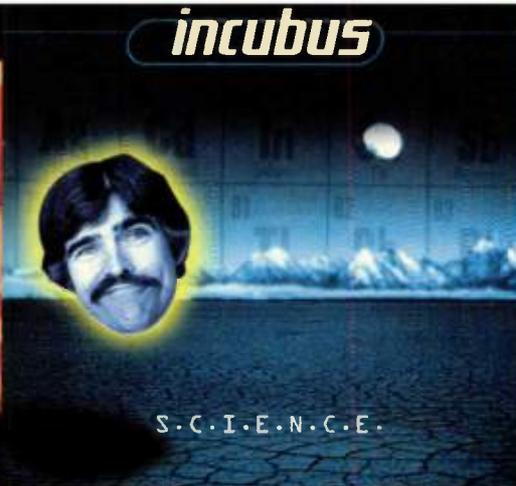
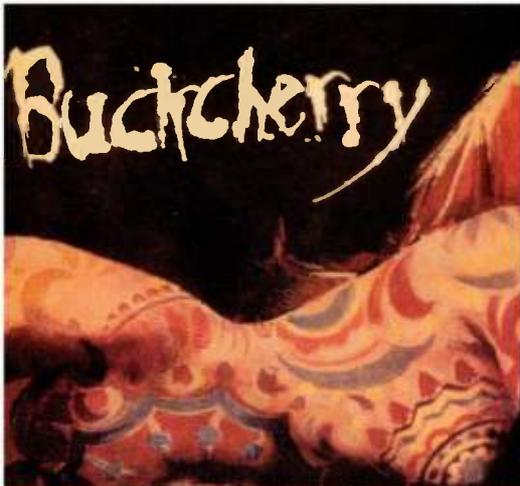
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TERRY DATE: Yes, there is a sonic connection. It's the guitars. I think all those bands started out listening to Kiss and Black Sabbath in some form or another. The distortion is different on Nirvana's guitars versus Metallica's, but I think they're both coming from the same place. The big difference between grunge and new metal really lies in the low end — the bass tones. But the guitars are the constant that carries across both styles.

Are there any constants in your approach to recording guitars, in terms of mics, placement, or processing equipment?

I almost always throw a [Shure SM]57 in front of the guitar cabinet, and that's all I use. People always say they like the guitar sounds on records I've produced. I wish I had something fancier I could tell them as far as what I do. I've tried expensive mics, multiple mics, but the most I ever use is two on one cabinet. I think it's more about the sound that's coming out of the cabinet than the mic that's in front of it. And for louder, heavier, distorted sounds, I need a mic that can really take a lot. So a '57 seems to be fine for that.

Do you compress guitars going down to tape?

I'll compress cleaner guitar sounds, but I don't compress heavy guitars — especially parts where the player is muting with his palm. I think I need all that extra low-end to come through. So I typically don't compress bass or heavy guitars going to tape. Although when I mix,

sometimes I'll take the bass and compress it then.

A lot of the guitarists that you work with tune down and/or play seven-string guitars. Is there any trick to capturing all those low frequencies?

That's an ongoing process of discovery for me. It is very difficult to work with low tunings like that. The instrument wasn't really designed with that in mind. It's easy for the guitars and bass to be out of tune with each other when they're tuned down. The looser the string, the harder it seems to be for the tuning to match up. It's also tough to get a tight low end and make all the frequencies match up the way I like to hear them. The danger is mushiness.

So can you EQ out overabundant low frequencies?

Yeah. On an SSL, I'll typically run a low end filter on those heavy guitars as much as I dare to. I'll filter it up to maybe 120 Hz even. And then I'll go back down to about 50 Hz and add some in. It adds a weird phase nightmare, I guess, but sometimes I can get away with that. It tightens up the sound. And if it's a straight chunky rhythm guitar part, I'll tend to suck out straight-up middle — somewhere in the 1.2 kHz region. Then I'll try to add a little bit in up around 2 or 3 k — all on narrow bandwidths, again, on an SSL.

Can you layer guitars — double and triple track the same part — when they're tuned that low?

Yeah. With the heavy ones, I'll always do at least two.

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I used to do three all at the same time, but I found that, if you do your job right, three is kind of unnecessary. Unless you want to have more of an upper midrange sound. Or if you want to fill out the hole that you sucked out of the two other ones. If you've got those two panned wide, sometimes it's good to pan a third track up the middle that's a little bit more standard sounding. Sometimes I'll even do four — two identical with one type of guitar panned left and right, then two identical ones with a different sounding guitar, just to thicken the sound out a little bit.

So how is the new Limp Bizkit album coming along?

Alright. You have to remember it's hard to do a record when you've just sold six or seven million records or whatever they sold on *Significant Other*. But they're doing a great job with the new album. It's a little different than the last record, too, which is good.

[Bizkit guitarist] Wes Borland played me some rough tracks a few weeks ago. Some of it was like psychedelic guitar jams.

It's a little jammier than the last record, yeah. I think they were trying to bring a little more from the first record [*Three Dollar Bill, Y'all!*] into this record while also maintaining the variety of styles from the last record [*Significant Other*], and maybe trying something new as well. So with eight or 12 songs, they're trying to throw a lot of different styles out there. It's very interesting. And Wes has a lot of good ideas on guitar. He likes to record with his own effects. He writes his parts with his effects on — both the heavy and the clean "character" sounds. He's fast and really fun to work with.

I also spoke with [guitarist] Stephen Carpenter from the Deftones recently. And the sense I got from him is that he's very much into using his live rig in the studio. Whatever he's perfected in concert, tonally, he just brings into the studio.

Right. And that's probably typical of every band I work with. We don't bring a lot of new gear into the studio. I like to use what everybody is comfortable with. If there's a certain sound they're used to hearing night after night standing in front of that amp, then it'll be really funny for them if we have something different in the studio. I usually have the guitar player in the control room when

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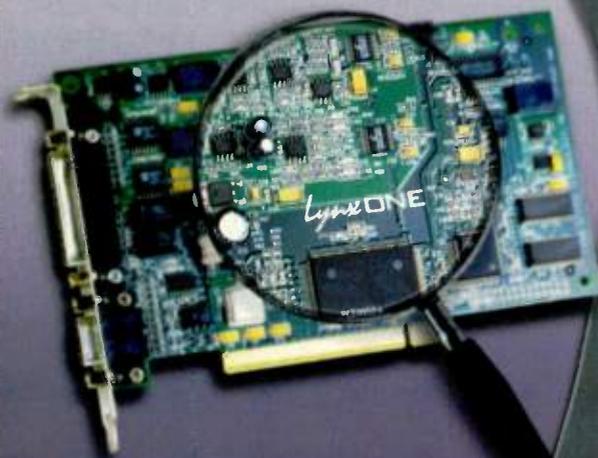
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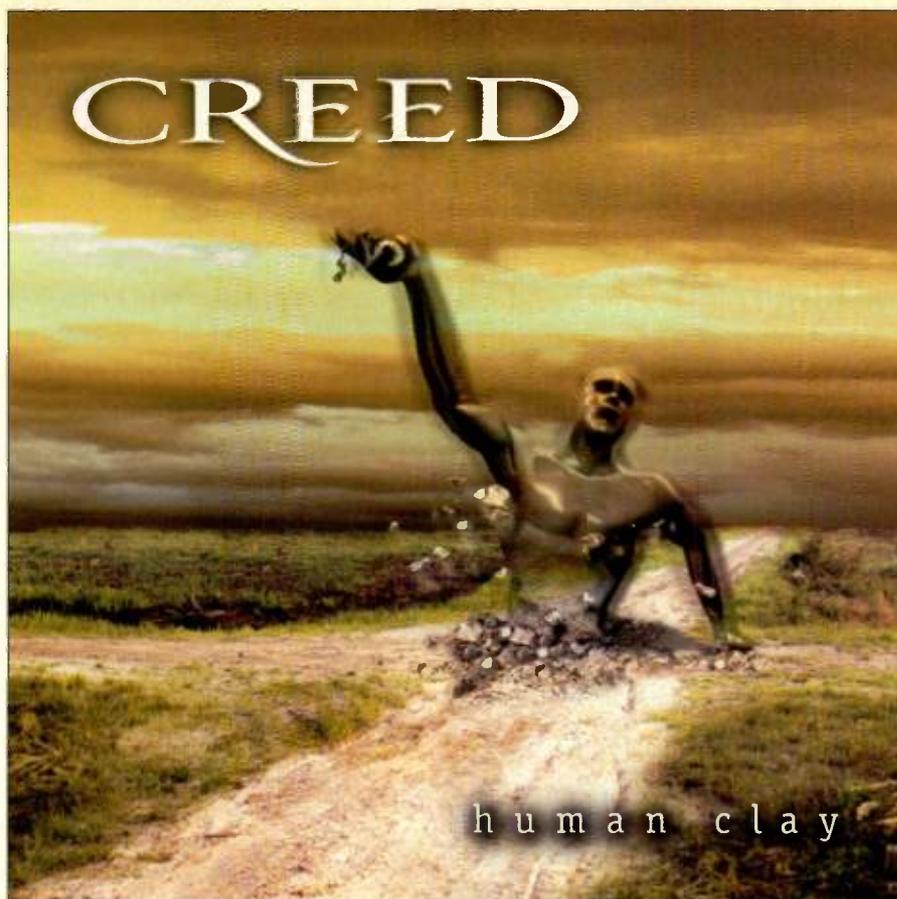
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If you've turned on your radio any time in the past year, there's a good chance that you've heard Creed. With songs such as "One" and "Sister" from My Own Prison, and "Higher" and "With Arms Wide Open" from Human Clay, Creed's heavy-rocking, yet melodic sound is unmistakable. Handling the production and engineering reins for Creed is John Kurzwieg, who had some interesting experiences recording guitar sounds for Human Clay.

THE PRE IS THE KEY

Creed recorded *Human Clay* in a private house, taking over various spaces for use as drum, vocal, and guitar rooms. According to Kurzwieg, the CD was tracked directly into Pro Tools. "Because of that, I found that I had to work twice as hard on the guitar sounds as I would if we were tracking to [analog] tape. But the first thing that's true whether you're tracking digitally or to tape is that the amp, the guitar, and the guy playing it has to be great. Mark Tremonti's [Creed's guitarist] rig is much better now than it was for their first album — so the sound at the microphone was really good, and that's half the battle. When you record to digital without using tape, I find it critical to use really good mic preamps like Neve's

or API's. I also try to go through tubes at some stage. I have a few Tube Tech pieces, which I like for guitars, especially if I'm going to digital. If I'm going to tape it's not as critical. Analog tape tends to make things sound a little bigger and wider than they might actually be."

John and Mark worked together in their "control room," keeping the heads for the amp rig with them, while the speaker cabinets remained out in the bedroom. John informs us that Tremonti "will let me turn the knobs to adjust his sound. I try to do as much as I can right at the amp. I think it's better to twist the knobs on the amp before I twist the knobs on the EQ or mic pre. If I take too much low end out of the guitar for his taste, he lets me know. Mark is real particular about the low end of the guitar. He likes a lot of low end, which makes mixing a little difficult sometimes. It's forced me to learn a lot about finding space for the kick drum and the bass.

"If it weren't for Mark and Creed," Kurzwieg continues, "I probably would have never tried to negotiate the problem of fitting the low end of the guitar in with the kick drum and bass. With Creed, it's a big issue. They like the guitar to be thick and huge. I can't just roll off the low end from the guitar like a lot of engineers might do. It's hard to fine tune,

BY STEVE LA CERRA

GUITAR SPECIAL



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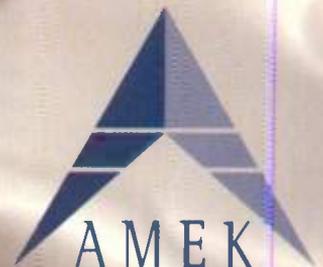


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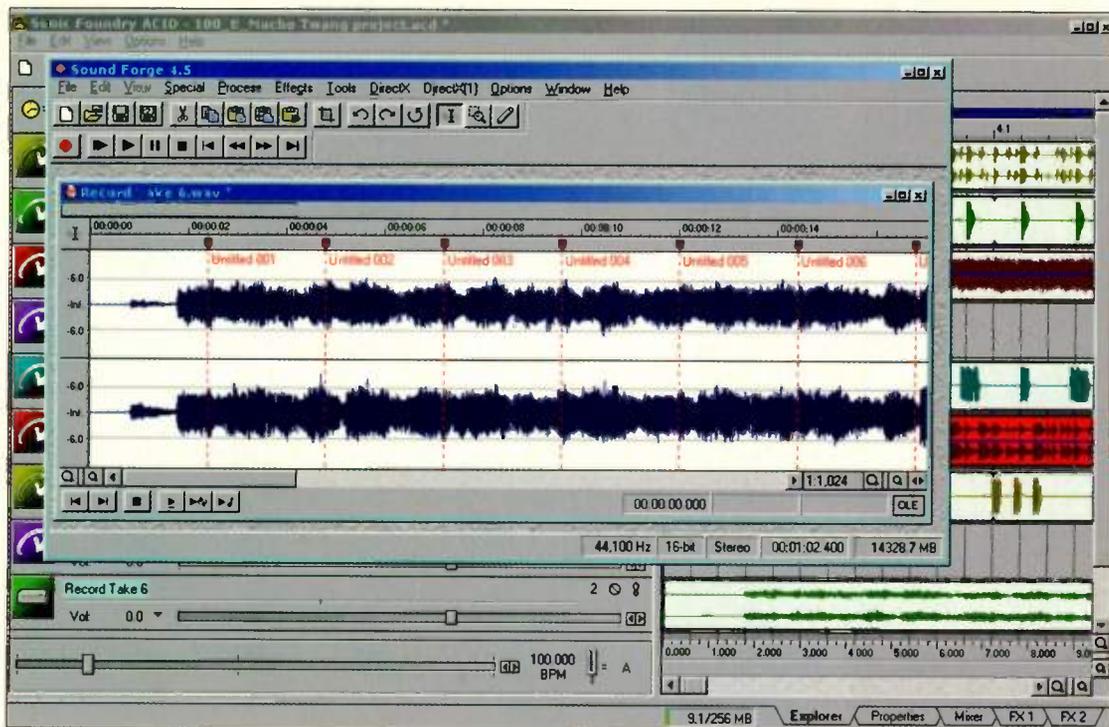


FIGURE 1: Importing a hard-disk track recorded in Acid into Sound Forge creates rhythmically meaningful markers that simplify the trimming process.

TEN TIPS FOR GREAT GUITAR LOOPS

NOTHING
COULD BE
EASIER THAN
CREATING
GREAT LOOPS —
IF YOU FOLLOW
THESE RULES

At first, the idea of reducing guitar parts to loops may seem like a travesty — after all, one of the beautiful aspects of guitar is the organic, flowing quality of a well-played rhythm part or solo. Fortunately, even the process of chopping a part into eight- or 16-beat patterns can't destroy those qualities. And when you throw those loops into a dance, hip-hop, or rap mix, they impart a warmth that's hard to coax from synths and samplers.

However, if you play guitar and are just getting into making loops, it's not easy to produce loops that work well in a variety of contexts. So here are some tips designed to get you up to speed.

1. Loop Length

I highly recommend two- or four-measure loops, because single-measure loops don't get a chance to "breathe" with the tension and release that two or more measures allow. With two-measure rhythm guitar loops, make one measure a steady rhythm and the second measure some kind of variation (e.g., rhythm followed by a short run or melodic pattern that leads into the loop beginning). That way you can repeat the first part of the loop when you want a steady background, then extend the loop out to the full two measures just before going into a change in the song (chorus, solo, next verse, etc.).

With four-measure loops, I follow the same

basic strategy — three measures of something fairly steady, with perhaps a slight variation in the second measure, and a major variation in the fourth measure.

2. Check Your Tuning Often

There's nothing more frustrating than generating a perfect loop that's just a little off pitch. Don't just check tuning when you start; check tuning often, especially if you do lots of whammy bar action.

3. Play in Context

Your loops will sound a zillion percent better if you create them while listening to a backing track. My favorite guitar loop creation engine is the Sonic Foundry Acid/Sound Forge combination. I set up a looped rhythm track in Acid using a variety of instruments, then start recording guitar on a hard-disk track. With Acid, even if you loop only a few measures, you can keep recording on the hard-disk track. Each "take" follows the previous one, serially, on the same track.

The best part of using this software pair is that if you then edit the hard-disk track in Sound Forge, marker lines show up at rhythmic boundaries (see fig. 1). This makes it easy to see where downbeats fall and where to make your cuts to isolate the best candidate sections for looping.

If you're not using Acid but a multitrack hard-disk recorder, no problem: Just record

BY CRAIG ANDERTON

GUITAR SPECIAL

NO CREATIVE BARRIERS...



Mo-FX

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Feel The Rhythm!

To coordinate the flange, tremolo and delay would be a nightmare with regular multi-effects or stomp boxes, but Mo-FX makes it easy. Simply tap in the tempo (or receive MIDI clock), put each FX block into sync mode and that's it - instant synchronization. Imagine a shimmering flange on the high end, the tremolo slowly panning the mid range and the delay quantizing the snare into a timbale, dub style groove. It's a sonic orgy of FX-Sex. Get Fatboy Slim's: "the Rockafeller Skank" sound by simply putting your mix through the Mo-FX delay and cranking the speed knob.

Mo' delivers unreal sonic soundscapes and retro-analog effects right through your fingertips. **Time and frequency manipulation is the key.**

"Mo-FX's front panel pots are arguably the nicest feeling ones I've had the pleasure to rotate, and the whole works lights up like NORAD during the Cuban missile crisis."

Keyboard - Keyboard KEYBUY

- ▶ **Band-Aid.** Choose which frequency bands or band combinations get sent through each FX block and unlock new and subtle sonic possibilities.
- ▶ **Hate Math?** You don't have to convert milliseconds into beats anymore. Mo's hands-on timing controls let you easily experiment and get into the groove.
- ▶ **Hang On A Moment.** Play, punch and attack the momentary buttons. Achieve musical switching effects not possible with knobs or bypass controls.
- ▶ **No Means No.** Gain intuitive, musical expression with your time based effects. Every control is up front and center so there's no menus, no matrix and no programming.

Here's how to do it...

FX-Sex Explained

Tap tempo to your track's quarter notes and activate sync for the FX blocks. Set the flange band to high, tremolo band to mid / low and the delay band to mid. Set the flange division to 8:1 and depth to 12 o'clock. Put the tremolo on a sine wave, and the delay at 1.5:1 with the regen at 10 o'clock. In about 5 seconds of knob twiddling you've got a throbbing sonic orgy in perfect time with your tune.

"Rockafeller Skank"

Run the track through the delay block in 'kill' mode. Tap in the tempo with the sync button on. Regen set to 0. The effect mix at 50%. Then quickly twist the regen knob all the way to 'loop' and disengage the delay. Now perform the "Skank" and slowly crank the speed knob up to max. The sound staggers upward into an infinite buzz.



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WEB NOTE

To hear some guitar loops in context with drums and bass, go to www.MusicPlayer.com > Reviews > Line 6 Pod 2.0 Update > Audio.

your rhythm track into an open track, while recording a metronome click (or other rhythmic marker, like a clave) onto a separate track. Record your guitar while listening to the rhythm track. When it's time to edit, the metronome will give you a visual indication of where to cut the guitar into loops.

4. Keep It Simple

The simpler and more elegant the loop, the easier it will fit into a variety of musical contexts. Complicated runs can come in handy for "spotlight" sections, but are not as universally applicable.

5. Re-Amping — The Solution to "Fixing in the Mix"

As you record your loop to hard disk, also record a direct guitar feed to an open track, if available. This makes it easy to generate variations (different tonalities, effects, etc.) on a loop. One typical application is to create a variation loop with a bit more distortion than the original loop; slide the more distorted loop in later in the tune, when you need to bring the intensity up a bit.

6. Avoid Using Effects

In the days of slower processors, signal processing plug-ins were precious resources that had to be used sparingly, if at all. Therefore, many loop libraries added processing to loops not just so that it would sound cool "out of the box,"

but also so you didn't have to use plug-ins for processing. But, in these days of 500–800 MHz processors, you can usually get away with running dozens of plug-ins. A non-effected loop will work in more contexts; if you need to process the loop and run out of power for plug-ins, copy the loop, apply processing offline, save the processed file, and bring it into your recording in place of the original loop.

The one major exception to using effects is the wah-wah, which hip-hop people really like on guitar loops. This kind of effect is integral to the loop.

7. Seamless Transitions

When you re-trigger a loop, you'll often hear a click at the re-trigger point. This may end up being masked by other sounds, but it's always worth taking the time to eliminate any glitching. Don't bother with crossfade looping or other niceties; simply add a 3–5 ms fade-in at the loop beginning and a 3–5 ms fade-out at the end (you may need to add only one of these to eliminate the click, but adding both *guarantees* no click). The "mute" or transition time from end to beginning is so short you'll never notice it, even with the loop played back in isolation.

8. Cut and Paste Solos

Creating solos that can be pasted together is a different skill compared to creating rhythm parts. I generally play the solo as a series of phrases rather than one continuous stream of notes. Breaking up these phrases into one- or two-measure loops lets you string the various pieces together into a satisfying solo. The best example of this

continued on page 134

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THE VIRTUAL GUITARIST

PUT ROLAND'S
VG-8 TO
WORK IN
YOUR STUDIO
WITH THESE
VIRTUAL TIPS
AND TRICKS

I started out on my musical crusade as an electric guitar player in the '60s messing with stomp boxes and any signal processor I could get my hands on in a never-ending quest to broaden my sonic palette. But I'd always end up back where I started: with just my favorite guitar and amp of the moment, and one 1/4-inch guitar cable connecting the three of us together in amplified bliss. All the gadgets would get stuffed away in a closet while I awaited the arrival of the next generation of wonder toys to inspire, amaze, and torture my poor old self. That is, until that fateful Winter NAMM where I caught a demo of Roland's revolutionary VG-8 virtual guitar system.

For me, the VG-8 is as ground-breaking a development for guitarists as the Yamaha DX7 was for keyboard players: A magic black box that lets one play a Strat during a verse, switch to a Tele for the chorus, then hop on a Les Paul for a solo, all at the touch of a foot pedal. Also included are modeled amps, effects, and synth-like tones. And, best of all, you don't have to relearn how to play guitar, or lose any of your technique as the VG is processing your guitar's sound in real-time, instead of converting it into MIDI data and triggering a synthesizer or sampler. Cool stuff? You bet!

Here are a few VG tips and tricks I've found over the years that you may find useful in your own stage and studio work.

• Tone Wars: E-Guitar vs. V-Guitar

To get a more true electric tone, try using a real guitar amp instead of running the VG's output into a PA or keyboard amp. I mean would you play your '63 Strat through a rig like that? I think not! The VG is not only a high-tech synth/modeling/FX device, it's also a great collection of guitar-based instruments, and, once you start using it as such, you'll be amazed at how true to life those COSM guitar models can sound.

• Better Crunch and Overdrive

Most VG enthusiasts agree that the distortion-based effects in the original VG-8 and the VG-8EX don't quite cut it. I find I get much better crunch and power chord tones running the VG's output into a vintage stomp box, or, if you have one around, try a Boogie TriAxis, Lexicon MPX G2, or a similar guitar preamp. I use both the Boogie and the Lexicon in my touring rig and find this combination adds an amazing amount of versatility to my VG-based setup.

• External Device Control

You can easily use the VG to control external MIDI devices such as the preamps mentioned above by assigning bank select and program change messages to any VG patch for recalling presets on external devices with just a touch of your toe. And remember, if need be, you can also go the other way around, using an external MIDI controller to recall presets on the VG.

BY MIKHAIL GRAHAM

GUITAR SPECIAL

COMING SOON...

Be sure to see next month's *EQ* for a look at Roland's brand-new VG-88 — complete with all-new VG-88 tips and tricks.

• The Virtual Capo

The VG's polyphonic pitch shifter is a Godsend for those of us who like to use alternate tunings and can't afford to carry three or four extra guitars to a gig. For example, instead of re-tuning for each song or having to use a capo, just create a preset with the tuning three frets higher (or lower). Or drop the low E to D, or try a DADGAD tuning, or just about anything you might imagine using six strings. Once it's stored in a preset, it can be instantly recalled and put to use on stage or in the studio.

• The Zawinul Exercise

Use the VG's polyphonic pitch shifter to tune the strings in reverse, so that the low E=high E, low A=high B, D=G, G=D, high B=low A, and high E=low E. I use this patch for both improving my chops and creating musical ideas I'd normally never think of trying.

A bit of history: Joe Zawinul used to do this with his Rhodes Chroma keyboard, playing it with one hand while the other was playing yet another keyboard tuned normally. Man what a player!

BONUS: If you have an expression pedal connected to the VG, you can easily set it up to control the pitch shift mix by foot, making for extremely odd passages as you glide between the normal and pitch-shifted tunings.

• Pedal Pushing

Adding an expression pedal to the VG is a must! Most presets only use it for volume, but try setting it up to add/subtract delay or reverb, or control the pitch shift amount for a foot-controlled whammy-bar effect.

• GK-Switching

Don't forget to use those GK switches! Most players forget they even exist, and they're so handy right there on the front of your guitar. Try arranging your patches in song groups and use the GK switches for quick patch changes, and, of course, for selecting virtual pickup setups.

• Stereo Dancing

The GK2-A series of pickups used with the VG-8 offer stereo output as each string has its own volume, pitch, and L/R pan position. This makes for some amazing animated aural dances when panning odd strings left and even to the right. Try fingerpicking with the strings panned across the stereo field for a lush spatial experience.

• Less Is More

A great way to create the illusion of several guitars playing in unison is to make use of the VG's multiple outputs. Run the direct guitar output into whatever outboard effects you'd normally use and plug its output into channel one of your amp or mixer. Next, take your favorite VG Les Paul patch, tune it up one or two octaves above normal pitch. Make sure you set the VG's mix balance so that only the pitch-shifted sound is present in the output. Try

continued on page 135

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PHOTO BY WES BENDER

RHYTHM AND GROOVE

NILE RODGERS
AND GARY
TOLE ON
THE "NILE
RODGERS
GUITAR SOUND"

Nile Rodgers — this month's guest producer in our From The Desk Of... series (see page 52) — is one of those unique triple-threats in the music business. Beyond his obvious talents and successes as a songwriter and producer, he has been a first-call session guitarist in studios the world over for more than two decades. Through the years, he and his engineers have crafted a unique, instantly identifiable guitar sound, based largely on ultra-clean rhythm grooves and digital crispness. We recently asked Rodgers and engineer Gary Tole (who's been with Nile since 1992) to deconstruct the famous "Nile Rodgers" sound.

"I look at my guitar almost the same way that an acoustic piano player looks at their instrument," Rodgers states. "I want my sound to sound like me, and then the groove or the vibe comes from what I'm playing.

"Technically, my goal in recording is to make what I capture either as good as what I normally hear, or better," he adds. "So, obviously, the quality of my signal is important. I'm so accustomed to the quality of my gear and my sound that I

know instantly if the signal is being compromised."

"A lot of Nile's sound comes down to his guitar selection," Tole explains. "He has a guitar he uses called the Hitmaker, which is one of the most amazing Strats I've ever heard." Tole emphasizes the importance of making sure that the guitar is intonated and set up correctly before entering the studio. "You can't repair an improperly set-up guitar with compression or EQ, at least not without damaging the tone of the instrument. Just because a guitar sounds great live, it won't necessarily sound great in an environment like a studio, where you can hear every note. A lot of times the musician can't hear what the engineer hears because he's too involved in the playing of it. He feels the guitar; I don't feel it — I hear it, and I can hear when there are inconsistencies, buzzing, fret noise, and all that."

"I like to go direct — that's my sound," Nile says. To create the direct sound, Tole utilizes either a vintage Neve sidecar or an Avalon M4 mic preamp. "The Avalon happens to

BY HOWARD MASSEY

GUITAR SPECIAL

All Your Time-Stretching and Pitch-Shifting Dreams Have Just Come True...

A new version, more features, more power. This is not a toy.

Pitch 'n Time, originally released in December 1999 by Serato Audio Research, has already been described as the best pitch and tempo control tool on the market today. It has received rave reviews from a number of pro audio magazines and

was recently nominated for the 2000 Mix Technical Excellence & Creativity award.

With the release of version 2.0, we at Imaginary Gadgets have built on that tradition of excellence to deliver a product which incorporates exactly what you have been wishing for.

Introduced in this release is an impressive array of new features including multi-channel mode, waveform overviews, tempo mapping, cue points and pitch mapping which together make Pitch 'n Time 2.0 an essential tool for your collection.

New in Version 2.0

Multi-Channel Mode allows you to process up to 48 tracks together while maintaining their original phase coherency.

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have a line input on it, so I use it for a DI," he explains. "Although the Neve sidecar is much beefier sounding, the Avalon is more transparent. It's just a matter of using the right tool for the job." Depending on the song, Tole sometimes compresses the direct signal with light ratios of 4:1 or 8:1, using either an 1176, the Bomb Factory software plug-in 1176 emulator, or a Crane Trakker. "But," he's quick to point out, "when Nile plays, he's very consistent in terms of his dynamics, so it's not like I'm using compression to fix anything; it's basically just to help place it in the track more than anything."

Rodgers's experience with direct boxes over the years has led him to some interesting insights. "I worked out of [New York's] Power Station for many years, and [technical engineer] Ed Evans had made these custom-

made direct boxes, so that's what we would use. Then the Countryman came along and we started using that. It seems to me that the quality of the signal that you're trying to capture somehow changes with the different types of gear that you're working with, and with the different eras in music. When the '70s were happening, we were definitely into passive [DI boxes]; our environment in the recording studio was very warm, tubey, lots of coils on your pickups, that kind of thing — what you might call the old, warm hi-fi mentality. Then when the '80s came in and things became a little more technical and bright — as solid-state gear became more popular — we would overcompensate in the warmth department for the inherent crunchiness and brightness that some solid-state gear would have. But,

interestingly, when we started to record on some of the early digital gear, we would find that the transients would somehow disappear. This was peculiar; it sounded brighter and harsher in that pristine super-top neighborhood, but it didn't respond the same way. So I think what wound up happening was we developed a love for the crunch, because we started to realize that the ease of operation became a little more important than the quality of sound. As a result, we started to learn to love what the gear did to the sound and compensated by adding a little bit to it here and there — nipping and tucking, so to speak."

Pro Tools plays a big role in the Nile sound of today, and Toles has come up with a unique trick when using it for guitar recording. "The problem with editing distorted guitars in Pro Tools is that the waveform is so complex, it's really hard to tell the difference between the attack and the sustain. So we'll run the guitar through a DI before routing it to an amplifier in order to record a guide direct signal along with the amped signal. That way, you can easily see the attack on the screen and use that as your visual reference when editing." Tole also makes a point of "warming" the signal before going to Pro Tools by routing it through tube equipment such as a Pultec equalizer. "I sometimes even run the signal to tape and back again, though the tradeoff is some noise. Most of the time, though, I can achieve the guitar sound I want without having to hit tape, just by using some vintage gear to color the sound." Pro Tools also allows Tole to shape Rodgers's guitar with numerous plug-ins, most notably Line 6's Amp Farm, though he offers this caution: "If I feel that sometime in the future we're going to end up using Amp Farm, I'll make sure that the recording of the guitar I have is the cleanest possible. What I've noticed — and this is actually kind of cool — is that, if there's any little noise or hum on the line, any little thing, Amp Farm is just like plugging into a real amplifier; it amplifies the noise in a huge way."

Rodgers's frequent use of a wah pedal has sometimes presented Tole with a challenge. "Over the years, I've had more problems with recording wah guitars than anything. We've gone through wah pedals like crazy, because there are just not a lot of great ones out there. We've found that a lot of the new ones just distort and crap out way too easily, whereas a couple of the older ones are really smooth — plus, their action feels more comfortable to Nile. When you're dealing with the frequencies that he's playing a lot of times with the wah, you tend to get spikes in the midrange that just crap things out. You have to be really careful with that, careful how much you're driving the mic pre and compressor. I usually end up having to record him while monitoring at a low level because that's when you're going to hear the distortion. When you're doing power guitars through a wah, it's a little different — you don't hear that kind of distortion. But the way he plays rhythm guitar — which is so distinct — when he plays through a wah pedal, it's very apparent."

Hum and RF are two problems that plague guitarists in recording studios everywhere, especially when you're recording a guitar with single-coil pickups in a big city. But a trick employed by New York's Right Track studios have given Tole a solution: "Their iso booth is actually encased in copper mesh, and we found that, if Nile plays in there, it totally eliminates all RF. I wouldn't think that would be very expensive for someone to build in their project studio, because it's just a frame with copper mesh around it. Just make sure it's big enough to hold the guitarist and his guitar comfortably; the amp can be placed outside."

"WHAT I'VE NOTICED — AND THIS IS KIND OF COOL — IS THAT, IF THERE'S ANY LITTLE NOISE OR HUM ON THE LINE, AMP FARM IS JUST LIKE PLUGGING INTO A REAL AMP; IT AMPLIFIES THE NOISE IN A HUGE WAY."

GUITAR SPECIAL

called into play when the DI signal just isn't working for a track. "The VG-8 gives us a lot of weird, almost keyboard-like sounds, so if Nile has an idea for effects or pads, he can actually play them himself on the guitar." (See page 90 for more on the VG-8 system.)

Though the direct signal is crucial to the Rodgers sound, there are times when actual amplifiers are used as well. Tole's normal approach is to use a multiple miking technique: "I'll set up five or six microphones around the amplifier and in the room and try to listen to all of them in the track without any EQ, so you're actually using the microphone selection and placement as the EQ. You get some very interesting results doing that, as opposed to just grabbing a knob and tweaking right away. I'm very big on getting the signal clean and properly from the microphones to the mic preamp stage to tape, with as little EQ and compression as possible; I find that I get the best results by not having to overEQ or overcompress stuff. Of course, when you've got a bunch of microphones all over the place, it's rare that they're all going to be able to work together without phase problems, so you'll often end up using just one of them, or possibly a two-mic combination. I like using a [Sennheiser] 421 and a [Shure] 57, properly positioned on a single cone; you won't have to worry about phase as long as they're placed properly. I might have a FET [Neumann U] 47 a couple of feet back, placing it where I hear it sounding really warm. I'll often also use a Beyer M160 somewhere around the amp, plus I'll have a couple of room mics."

Above all, Rodgers emphasizes the importance of his sound to his performance, characterizing the interaction as closed-loop: "So much of my technique is dependent upon me muting the strings and all of the sympathetic sounds that happen from playing so much rhythm. If I can't detect that information, either I'm not going to feel as free — therefore it's going to hinder my playing — or I'm going to be afraid that once we start to listen back, I'm going to start hearing all sorts of noises and stuff that I don't dig. In turn, that makes me a little more inhibited, so you don't get the same result. The bottom line is, the more I sound like me, the better I'm going to play."

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LINE 6 BASS POD REVIEW

A GREAT
WAY TO BEEF
UP AND
RECORD
YOUR BASS
SOUNDS

Maybe it's because they only have four or five strings to look after, but bass players have long been the neglected members of the band. Largely relegated to standing out of the spotlight, they commiserate with the other "outcast" member — the drummer — while the guitarists hang out front and center with the lead singer, gaining most of the attention and accolades. In the studio, the prevailing attitude of many engineers is "just plug it into a DI so we can get on with the *important* task of arranging a dozen mics around the ten guitar amps we're trying out." Sure, during the mix, the bass signal may receive a little more attention, but it's rarely anything more involved than running it through a compressor and maybe tweaking the EQ a little.

But with the coming of the Line 6 Bass Pod, those days are numbered. Though the flashy bright red of the original guitar-centric Pod is replaced with a sober battleship gray (one last prejudice, perhaps?), the intention is the same: To produce a wide variety of amplifier and cabinet simulations, as well as numerous rack and stomp box effects emulations. Only here the emphasis is on *bass* amps and effects.

In all, the Bass Pod serves up 16 different amp models, ranging from the obvious to the obscure: SWR SM-400, Mesa/Boogie Bass 400+, Polytone Mini-Brute, Eden Traveller WT-300, Gallien-Krueger 800RB, Sunn Coliseum, Acoustic 360,

Ampeg SVT, Ampeg B-15, Marshall Major, Marshall Super Bass Plexi, Fender Bassman, Vox AC-100, even the esoteric Versatone Pan-O-Flex (great name!). There are also two "generic" models: a tube preamp (suitable for processing signals other than bass) and a techno/electronic-oriented subbass preset appropriately called "Sub Dub." These can be "plugged into" any of 15 different cabinet models: Ampeg SVT 8x10 and B-15 1x15 closed-back combo, Eden "David" 4x10, SWR "Goliath" 4x10, Hartke 4x10, Pan-O-Flex 1x12, Marshall 4x12, Polytone 1x15, Vox 2x15, Mesa/Boogie 2x15, Fender Bassman 2x15, Marshall 4x15, SWR 1x18, Acoustic 360 1x18 folded horn enclosure, and even the complex Sunn Coliseum 8028, consisting of 1x18 and 1x12. When you select an amp model, its accompanying cabinet is also loaded; however, you can change this default by customizing the settings. There's also a "no cab" option if you want the amp signal alone; this is of particular value if you plan on using the Bass Pod as a front end for a real bass amp.

While I didn't have all of these amps available for comparison during this review, I have at one time or another owned or used many of them, and their sonic signatures are well etched in my brain. Needless to say, the "sound" of a bass amp is largely dependent on the instrument plugged into it and the skill of the player (not to mention its

BY HOWARD MASSEY

GUITAR SPECIAL

settings and the placement and selection of the mic used on it), but it's clear to me that Line 6 has managed to successfully capture the essence of most, if not all, of these amplifiers. The main exception is the SVT model; the "SVT" setting of my SansAmp PSA-1 (which, granted, is an all-analog tube emulator, not a digital amp modeler) is closer to the reality of the beast. I also preferred the Bassman setting of the PSA-1 to that of the Bass Pod — it's smoother and creamier. In fact, a number of the Pod's models sound somewhat smaller than the real thing, but that's really not a negative. Instead, you can think of the signals as having been pre-"tamed," and therefore more suitable for recording, requiring less processing in the mix stage to get them to sit in a track.

Because the direct bass signal has become so important to modern engineers, the Bass Pod provides separate DI and processed outputs on balanced 1/4-inch jacks. Ideally, the DI signal should be an amplified, but otherwise identical, version of the signal leaving the bass guitar. In practice, DI boxes tend to color the signal, and the Bass Pod is no exception. In comparison to the other DI boxes in my arsenal (a generic Pro Co passive box and a high-end Retrospec Juice Box Class A tube DI), its DI signal was dark and somewhat woolly. This coloration can serve to beef up a weak signal — my 1974 Rickenbacker 4001 sounded great through it — but it can also muddy an already bottom-heavy input; my 1970 Fender Precision bass sounded cleaner through the other two DI boxes. My advice is to not rely entirely on the DI output of the Bass Pod; keep another DI box or two handy and compare the various signals to see which works best for your particular instrument.

I consistently got the best results by using both a DI signal and a Bass Pod amp model. By carefully blending the levels of the two, I found that I rarely had to use EQ or even external compression (the Bass Pod's built-in compressor, modeled after the famed LA-2A, worked just fine on most signals). However, I did sometimes have to invert the phase of one or the other signal to get the cleanest sound — a common trick used by engineers when combining an amp'd and DI'd signal — so it's somewhat surprising that there's no phase reversal switch on the Bass Pod itself.

The Bass Pod's effects section offers a wealth of classic bass processing tools, including models of the Boss OC-2 octave divider and Bass Synth, Roland CE-1 analog chorus, TC Electronic SCF chorus/flanger and Booster Line

Driver/Distortion, MXR Phase 90 and Flanger, MuTron III envelope follower (yo, Bootsy!), Oberheim sample-and-hold filter, Electro-Harmonix Big Muff Pi and Hogs Foot, and the beloved Pro Co Rat distortion pedal. The selected effect is always applied to the processed output and can also optionally be applied to the DI output. The feature that really makes these effects extra-cool is called FX Lo-Cut; this allows you to dial in a crossover point above which the effect is applied, leaving the low-frequency components untouched. As the manual states, this is "kinda like serving up your main course (the fundamentals), and then adding the secret sauce (the effects) as a seasoning, instead of drowning the whole thing in mayo" — a tasty analogy indeed.

The tradeoff for any form of digital processing is a certain amount of signal delay, referred to as *latency*. The good news is that the latency of the Bass Pod is quite respectable — approximately 7 msec for the processed output and a virtually insignificant 1 msec for the DI output. To test this, I used a passive signal splitter to route the output from my bass to three devices: the Bass Pod, a SansAmp PSA-1, and a Retrospec Juice Box DI. I then routed all four outputs (taking both the DI and processed output from the Bass Pod) to Pro Tools and recorded a series of single notes, played with a pick so as to maximize the attack transient. The latency values remained essentially unchanged regardless of the Bass Pod models selected and the pitches played. To put this into perspective, 7 msec is about the same amount of delay you get when you stand seven or eight feet in front of your amplifier.

The front panel of the Bass Pod will give the tweak-happy user all he or she craves. In addition to the amp model and cabinet/effects model selection switches, there are dedicated controls for volume, input drive, effects depth, and compression amount, as well as a three-band equalizer. Twiddling any knob makes it instantly active (thoughtfully, arrows in the display show you whether you've reduced or increased the preset value), and there's also a "manual" mode where what you see is what you get. When you create a setting you like, it can be stored in any of 36 user memories, and you can also customize the amp models themselves so that

I GOT THE BEST RESULTS BY USING BOTH A DI SIGNAL AND A BASS POD AMP MODEL. BY BLENDING THE LEVELS OF THE TWO, I FOUND THAT I RARELY HAD TO USE EQ OR EXTERNAL COMPRESSION.

EQ

LAB REPORT

MANUFACTURER: Line 6, 555 St. Charles Drive, Thousand Oaks, CA 91360. Tel: 805-379-8900.
Web: www.line6.com.

SUMMARY: Sixteen different virtual bass amps and 15 different cabinets (plus 15 bass-oriented effects, an equalizer, and a compressor) in one compact easy-to-use package.

STRENGTHS: DI and processed balanced outputs. User-adjustable effects crossover. Low latency. Built-in tuner. Extensive MIDI control for full automation. Headphone output makes this a great practice amp. Excellent manual.

WEAKNESSES: No phase reverse switch. Some models are on the "small" side. DI output colors the signal more than some dedicated DI boxes.

PRICE: \$495

EQ FREE LIT. #: 102

calling up a new model automatically calls up a whole bunch of linked parameters. However, all of these memory areas come filled with excellent factory programs, so you may have trouble deciding where to place your masterpieces. Although all the factory programs can be recalled, this has the result of overwriting any user programs you may have stored, so I would have preferred a scheme where there were separate storage areas for factory ROM and user RAM programs.

Just about every Bass Pod parameter can be accessed and automated via MIDI, including a few "hidden" parameters that don't appear on the front panel, such as compression ratio and attack/decay times. Twiddling most front-panel knobs also transmits MIDI control data. By the time you read this, the Bass Pod should ship with a custom version of Emagic's Sound Diver, which will enable you to create and organize libraries of sounds in your Mac or PC, as well as swap patches with your friends and download new presets from the Line 6 Web site.

There are a number of other thoughtful features here, including a tuner, a noise gate, and a single band of post-

model parametric EQ (useful for honing in on and removing an annoying resonant frequency, for example). There's also a headphone jack, which transforms the Bass Pod into an excellent practice amp. The unit is pre-configured to integrate nicely with Line 6's Floor Board and FB4 foot controllers, and the aforementioned owner's manual (available in PDF format from the Line 6 Web site if you'd like a sneak peek) is friendly, clear, and well-written. As bonuses, it includes a fascinating history of bass amplifiers and diagrams showing the various ways the Bass Pod can be integrated into your rig.

At long last, the Bass Pod brings the art of recording bass into the 21st century. This can easily be the secret weapon that brings new life to your tired old bass tracks. From my lowest B to my highest G, I give it a hearty thumbs up!

Howard Massey heads up On The Right Wavelength, an audio consulting company, as well as Workaday World Productions, a full-featured project studio. His latest book, Behind The Glass (Miller-Freeman Books, is a collection of interviews with record producers.

LINE 6 POD 2.0 UPGRADE KIT

So what does Pod do for an encore? The Pod 2.0 update kit, which involves forking over \$59.95, removing the rear cover (four screws), pulling the old EPROM (the kit includes an EPROM puller), inserting the new EPROM, and putting the cover back on. The upgraded Pod gives you:

- **Four new amp models.** You can also access all 32 amp models from the front panel (formerly, you could access models 17–28 only via MIDI). Some of the older models are also slightly improved.
- **Selectable cabinets.** Select cabinets from the front panel (a new feature) as well as via MIDI.
- **Customized amp models.** "Attach" particular parameter values to an amp model. For example, if you prefer to use a certain cabinet and presence setting with a certain amp model, those parameters are called up with the amp model. Default parameter values can also be attached to effects, so that when you call up an effect, it uses your favorite settings.
- **Pod guitar amp modes.** Pod used to give a choice between optimizing it for direct or guitar amp applications. Now, 2.0 offers four guitar amp "tunings." When feeding either a combo amp or a power amp driving a speaker cabinet, you can optimize for open or closed-back cabinet.
- **Smoother preset switching.** Pod updates only changed parameters, which pretty much eliminates glitching when switching presets.
- **Tone transfer.** Pod now speaks the same patch language as the Flextone II amps and Pod Pro, allowing for easy patch transfer among all Pod family members.
- **Improved tuner.** It now tracks better and is easier to use.
- **Version 2 SoundDiver software for editing parameters.** Although the interface remains somewhat obtuse, the program is very helpful if you're an inveterate tweaker and/or patch collector. Caution: If you're upgrading from an older version, trash the original preferences file so that the new version creates its own, otherwise you may run into glitches. Also, check the Line 6 Web site for the latest version — there's already been at least one update since the version that accompanies the Pod 2.0 upgrade was released.

Overall, this upgrade's well worth installing. You don't lose functionality, and you gain several cool features. The four amp models, in particular, are useful, and deliver on the promise of software-updateable amp models. The only drawback is that you need to access the new features through the old interface, which means some non-intuitive button-pushing. But that's a minor gripe, given what you get in return.

The upgrade kit is available through Line 6 dealers or directly from the Line 6 Web site at www.line6.com.

Web Note: You can hear MP3 examples of these four new amp models, as well as see the patch settings for the examples, by going to www.MusicPlayer.com > Reviews > Line 6 Pod 2.0 Update. There's also a link to the original Pod review that appeared in EQ, as well as to an article on "How to Replace EPROMs," which is based on the Pod upgrade. — Craig Anderton

GUITAR SPECIAL

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POD PRO SPECS

Analog Inputs:

Guitar: 1/4-inch unbalanced
 Line: 1/4-inch -10 dBV unbalanced

Analog Outputs:

Unprocessed Guitar: 1/4-inch -10 dBV unbalanced
 Stereo: 1/4-inch -10 dBV unbalanced
 Stereo: ..XLR +4 dBu balanced (Studio mode) or balanced mic level (Live mode)

Analog Insert 1/4-inch stereo in and out (tip=left, ring=right)

Digital Outputs Coaxial RCA S/PDIF or XLR AES/EBU

Sample Rate 44.1 or 48 kHz

Sample Resolution 24-bit

External Word Clock Input BNC

MIDI Input, output

Patch Storage 36 user locations

Amp Models 32, based on units from Marshall, Fender, Mesa Boogie, Soldano, Vox, Matchless, Budda, Dumble, Roland, Dallas Arbiter, and Line 6

Cabinet Models 15 (+ "no cab"), based on units from Fender, Vox, Marshall, Matchless, and Line 6

Effects Compressor, chorus [2], tremolo, flanger [2], rotary speaker, delay, delay swell, reverb [2]

real amps. The sound was missing that punch and tight, low-end thump you get with, for example, a good 4x12 cabinet, even though the tone itself was convincing. The problem here isn't the Pod Pro, rather, it's just tough for a nearfield monitor to move the air that a big guitar cabinet does. After turning on my studio's 15-inch subwoofer, I was convinced: There was plenty of gut-thumping "chunk" to the sound. If you're used to standing by your guitar amp while recording, this may be an issue, but if, like me, you normally track guitar from in the control room while monitoring through the studio's speakers, it won't be a problem.

I used the Pod Pro with a Strat (with EMG "S" pickups), a Les Paul with stock humbuckers, a Tele with Seymour Duncan Broadcaster pickups, and a Hamer Explorer-style shred machine loaded with Duncan Distortion and JB pickups. My amp/speaker references were a 50-watt Marshall through a 4x12 cab, a Mesa Boogie Mark IIB combo, a Peavey Classic 4x10 combo, and a small Fender Vibroverb combo. I interfaced it both digitally and via analog to my Pro Tools Mix system, a Yamaha 01V, an Alesis MasterLink, and straight into my monitors using a Furman SRM-80.

Unlike some similar guitar processors I've tried in the past, with the Pod Pro, the sound of the guitar itself comes through, just like it does on a real amp — it was no problem to tell where I'd played the Strat, where it was the Les Paul, and so on. The Pod Pro reacts perfectly to picking dynamics, distorting and cleaning up realistically. Similarly, distorted patches clean up naturally when the guitar's volume knob is turned down.

The 36 factory presets lean toward pop/rock tones, with a selection of heavy distorted sounds, twangy clean sounds, and more, but it's capable of just about any sound you want, including nice

warm traditional jazz tones. The Pod Pro is the first such processor I've tried that really captures that "semi-clean" tube amp tone well. Line 6 should be commended for not slathering the factory sounds in washy reverbs or heavy effects. The presets are all fairly dry and let the sound of the various amps come through.

The Final Word

The Pod Pro is one *happening* box. It sounds right, feels right, and, as much as the purist in me hates to admit it, in a track, it's virtually indistinguishable from a real amp.

Does it sound like your favorite amp? Maybe, maybe not — I'm betting that if you dig in and give it a try, you can get it sounding darn close. But the bottom line is this: Using the Pod Pro I was able to dial up the sounds I wanted for

the tracks I was working on far more easily than if I'd had to drag out a pile of amps, speakers, mics, and effects. Purists are going to have trouble with the concept, but, in the end, if you get the sound you want, does it really matter if it comes from a box or from a stack of gear? Yeah, I'm hanging on to my amps and effects; they have a lot to offer. But you can bet that the Pod Pro will get used a lot in my rig, both for guitars and for processing other types of sounds.

Being a reviewer can be an expensive proposition; when you really like a product, returning it to the manufacturer can be a hard thing to face. In the case of the Pod Pro, I'm saving myself the sweet sorrow of parting; the unit is staying right here in my studio. Besides, I got Chinese take-out on the manual, there's no way I can return it now...right? 

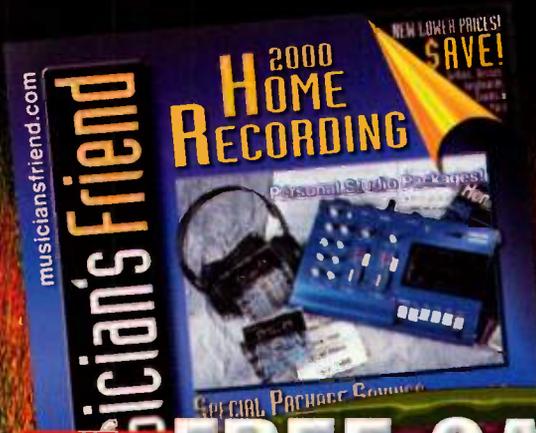


A dedicated version of Emagic's SoundDiver editor/librarian software comes bundled with the Pod Pro. In addition to handy patch organization features and a graphic interface, the software lets you access noise gate, reverb, wah pedal, and volume pedal parameters that you can't get at from the Pod Pro's front panel.



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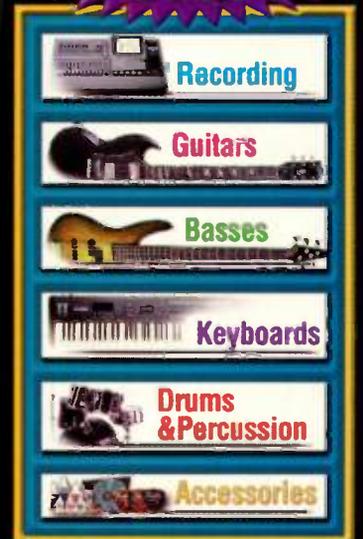
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Waves L2 UltraMaximizer Digital Peak Limiter/ Level Maximizer

Make your mixes
loud and proud with
Waves' new hardware
limiter/level maximizer

BY MITCH GALLAGHER

Plug-ins have become a fact of life for many of us: Many of the processes that formerly required racks of equipment to accomplish can now be done by simply pulling down a menu, choosing a software plug-in, and tweaking a few settings. It raised a few eyebrows, then, when plug-in mavens Waves announced an upcoming hardware version of one of their most popular plug-ins. Was this a step backward or forward?

The plug-in in question, L1, provides high-quality peak limiting, level maximization, and word length reduction. The new box, L2, brings to bear focused, dedicated DSP power on the same processes. Outfitted with great analog-to-digital-to-analog conversion and digital connectivity, the L2 can serve a variety of purposes outside of straight-ahead limiting for DAW-, digital tape-, and analog-based studios.

OVERVIEW

The L2 is straightforward to connect and operate. It's a two-channel unit

that can be set up to operate with the channels linked for stereo, in which case the top (left channel) controls determine the settings for both channels, or dual-mono, in which case both the left and the right channel controls are active. Dual-mono operation allows the L2 to be used to independently process two signals, handy during tracking or during some mixdown situations.

The L2 back panel contains AES/EBU, coaxial S/PDIF, and word clock digital connections, as well as XLR and 1/4-inch analog ins and outs. The 1/4-inch connections can be used for either balanced or unbalanced signals, although the operating level remains +4 dBu, and can't be switched to -10 dBV. This may cause some problems when interfacing with -10 gear. According to a manual addendum sheet: "signal quality" was a higher priority than "foolproofing." The power switch is on the back panel, making it difficult to reach if the unit is rackmounted. Waves says this is to reduce the risk of accidentally cutting the power in broadcast situations.

The front panel is equally easy to understand. The left side contains three switches for setting the input source, clock source, and sample rate (44.1, 48, 88.2, or 96 kHz). Three more switches determine the unit's IDR settings. (See sidebar for more on IDR.)

Next up is a pair of input trim controls, which affect only the analog input level. The input trims aren't stepped, so



it's difficult to duplicate settings or to match the two channels. Even more problematic, the input trim knobs on my review unit weren't lined up; one pointed several degrees off from the other. I pulled the knobs off and attempted to re-seat them, but was unable to completely align their markings. It's possible that you could open the box and physically twist the potentiometers to line them up, but, on a box intended for pro mastering, this shouldn't be necessary.

Once you've set up the input, clock source, and sample rate, selected IDR settings, and (if you're working on analog inputs) set the trims, there are just three controls you need to worry about:

Threshold: As with most dynamics processors, Threshold determines the level at which the L2 limiter starts operating on the signal. But, in the L2, the threshold setting does more than just instigate signal squashing; it also determines how much gain is added to the input signal. For example, when you lower the threshold to -6 dB, 6 dB of gain is added to the input level.

Out Ceiling: The L2's output is controlled by setting the Out Ceiling. This sets a level beyond which signal will not pass. For most applications, you can keep this around 0 dB, since you're attempting to maximize levels. Personally, I find it best to set it to -0.1 or -0.5; I find this little bit of headroom helps prevent problems later with tracks played back on lower-quality devices.

Release: The release control determines how fast the limiter "lets go" of the signal; it's simply how fast the L2 stops limiting. For all practical purposes, this control can be ignored. Why? Because L2 contains Waves' proprietary ARC (Auto Release Control), which can dynamically choose the optimum release setting for the given program material. This works astonishingly well. In a *Pro Sound News* review, noted mastering engineers Bob Ludwig, Glenn Meadows, and Bob Katz all reported that there was little reason to

even attempt to manually better the results you can get with ARC. My advice? Turn on ARC and forget the Release control even exists.

In addition to the ARC on/off switch, three other switches complete the front panel controls: Bypass, Peak reset for the level meters, and a Link switch for stereo or dual-mono operation.

software processors. I also compared the results using ARC on the L2. (ARC is not a feature of the L1 plug-in.)

With IDR switched off and 6 dB of threshold gain, there is the tiniest difference in the 24-bit sound quality when signal is not being limited. The stereo image is slightly wider and more open with the L2. While the L1 seems to add just a bit of

EQ LAB REPORT	
MANUFACTURER:	Waves, 306 West Depot, Suite 100, Knoxville, TN 37917. Tel: 865-546-6115. Web: www.waves.com .
SUMMARY:	A hardware version of a software product — how's that for an about-face? High-res stereo peak limiting and word length reduction plus excellent A/D and D/A conversion in an easy-to-dial-in box.
STRENGTHS:	Stereo-linked or dual-mono operation. High resolution support. Great sounding. Excellent converters. Easy to use. IDR. Good manual.
WEAKNESSES:	No -10 dBV support. Difficult to match analog input trim levels. May contribute to escalation in the already chronic "Volume Wars."
PRICE: \$2,395	EQ FREE LIT. #: 105

Ample displays are provided for getting a handle on what you're doing to the input signal. Three 3-digit numeric LEDs display the threshold, out ceiling, and release settings (with ARC turned on, the last is irrelevant), while corresponding LED ladder meters provide peak level metering for input level, output level, and amount of signal attenuation.

COMPARING L1 AND L2

When I mentioned to people that I was reviewing the L2, a common response was, "How does it compare to L1?" (At least among studio denizens. With non-studio people, I received blank looks.) Being that I've used L1 extensively myself, I was anxious to investigate that question.

I hooked the L2 up digitally to my Pro Tools Mix rig, then set up a stereo aux input and routed through the L2 using an insert. I set up a similar insert routing on another stereo aux input, this time instantiating the L1 plug-in. I routed a variety of solo tracks and stereo mixes through both auxes so that I could A/B the two processors. Since the same processing controls are provided on each, I was able to duplicate the settings on the hardware and

lower midrange girth and a hint of crunchiness to the sound, the L2 stays more transparent. Once the signal begins to be limited, the difference is more audible. The L2 remains cleaner.

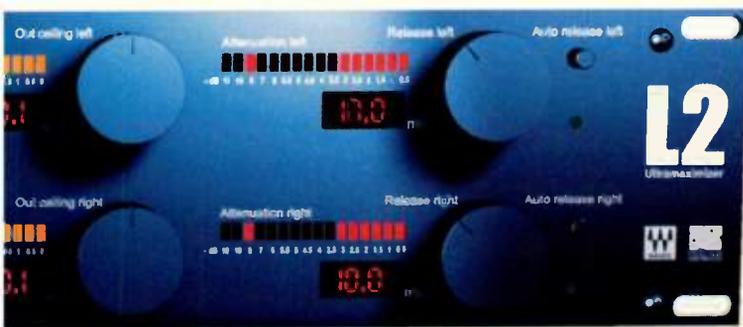
When using IDR to quantize a 24-bit signal to 16-bit resolution (without dither or noise reduction), the L1 sounds marginally less dynamic and less detailed than the L2. With Type 1 dither and Normal noise shaping engaged, I would characterize the L2 as more open-sounding.

Just for the heck of it, I attempted to duplicate the "meters go to zero and never budge" level of limiting so common in pop music today. With this type of setting, the L1 definitely goes into raspy, crunchy distortion much earlier than the L2. If you're going to be seriously squashing mixes (and I'm not suggesting you should), the L2 stays cleaner and manages to somehow sound more dynamic.

Both the hardware and the plug-in processor are very easy to dial in and use. Employed conservatively, they both can enhance the quality of the audio they pass. But if you want that last bit of "more" from your sound, the L2 is definitely the way to go.

OTHER APPLICATIONS

I experimented with tracking into Pro Tools and, at higher sample rates, into an Alesis MasterLink through the L2; using it both for analog-to-digital conversion



and as a "safety" limiter to prevent digital overs. In this application, it's simply wonderful. The converters sound excellent, and, as a brickwall peak meter, the L2 is hard to beat.

I also employed the L2 for some limiting when tracking guitars using the Line 6 Pod Pro processor reviewed elsewhere in this issue. Here, the result was a fatter, punchier sound; I preferred it on distorted guitars, but it was also useful for making twangy chicken-picked Telecaster parts pop a bit more.

As an analog-to-digital front-end for my Panasonic SV-3700 DAT machine, the L2 excelled. The converters are a big step up from the older Panasonic's, and being able to reduce 24-bit input signals to 16 bits using IDR offers great benefit. Plus, there's no worry over an accidental digital clip. Just set the Out Ceiling and let it rip.

CONCLUSIONS

Waves have a solid winner on their hands with their first hardware offering.

I can't wait to see what they're planning next — hey guys, if you need suggestions, I'd love to see a hardware version of the C4 plug-in! I'd also love to see a six-channel version of L2 for surround mixing, or at least the ability to link multiple stereo units. I was able to accomplish good surround results by bouncing mixdown stems in stereo pairs through

the one L2 I had, but I think the results would be better using six linked channels.

I'm hoping that the release of a unit like this isn't going to see an escalation in the already devastating "Volume Wars" we've seen of late. (Note to artists and engineers: Level

meters are supposed to *move* occasionally.) Applied as it's intended, the L2 is an awesome tool for a variety of applications outside of the obvious mastering chores. Give it a listen, I think you'll agree that Waves has taken the concept behind the ubiquitous L1 plug-in to the next level. Who needs plug-ins when you've got hardware? **EQ**

Waves has taken the concept behind the ubiquitous L1 plug-in to the next level.

IDR

The L2 Ultramaximizer contains Waves' proprietary IDR (Increased Digital Resolution), which is a word length reduction/dithering/noise-shaping system co-developed by Waves and the late Michael Gerzon, an authority on psychoacoustics. The system provides independent selection of word length (16, 18, 20, 22, or 24 bits), two types of dither (or none), and three levels of noise-shaping (moderate, normal, and ultra). The L2 doesn't do 8- or 12-bit quantizing like the L1 plug-in does, but it does support dithering its internal 48-bit resolution down to 24-bits for output. Waves says this results in 27-bit perceived resolution. (IDR is said to add three bits of apparent resolution to whatever "real" resolution is selected.) According to the L2 manual, the only reason to turn IDR completely off is to take the L2 completely out of the chain (to make it "24-bit clean" or "bit transparent") — although the Bypass button does the same thing.

Essentially, IDR attempts to "trade" the usual artifacts resulting from word length reduction for other, less audible artifacts. The two types of dither and three types of noise shaping allow you to "move" the dither noise to higher frequencies (above 15 kHz) where it's less noticeable than broadband hiss or noise. In practice, the results are excellent.

The manual does a commendably good job of describing IDR, as well as providing instruction on when the various settings should be employed. For example, certain IDR settings will survive subsequent processing and digital editing, while others are intended more for final "master" processing. —MG

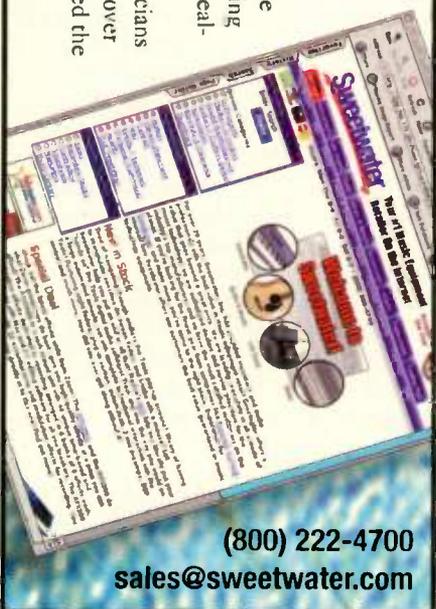
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*Actual unit is 19" wide and will not fit in your computer drive bay.



PROFESSIONAL PRODUCTS

CIRCLE 21 ON FREE INFO CARD

H A Harman International Company

JBL LSR25P Compact Powered Monitors

JBL's new powered monitors are aimed squarely at digital audio workstation users

BY BOBBY OWSINSKI

As digital audio workstations and edit suites have become more and more commonplace, so has the need for small, yet high-quality nearfield monitors specifically tailored for this application. Now industry pioneer JBL has concentrated the efforts of its prodigious design team to create the new LSR25P to address this market segment. But instead of taking the easy route by using off-the-shelf components, JBL instead has built a unit, from cabinet to transducers, totally from scratch.

THE SPECS

The LSR25P utilizes JBL's latest transducer and system technology used in its larger LSR studio monitor systems. At the heart of the new unit is the Linear Spatial Reference (LSR), a philosophy based on a set of design goals that provide control over dispersion by way of transducer selection and crossover frequency design. As a result of incorporating LSR into the system design requirements, JBL maintains that placement rules are relaxed, a more stable stereo image is maintained, and off-axis coloration is minimized.

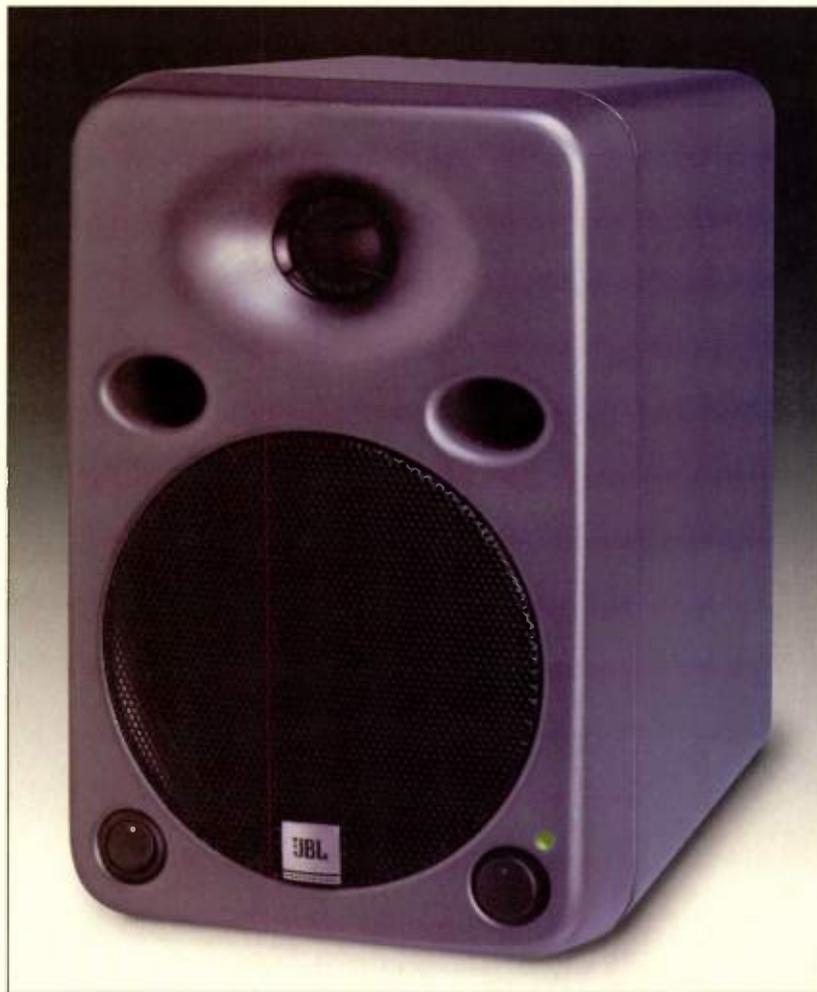
The LSR25P is a two-way, biamped system featuring a 5 1/4-inch woofer powered by a 100-watt amplifier and a 1-inch composite tweeter powered with a 50-watt amp. The shielded woofer is based on JBL's research into low-distortion high-excursion designs and is said to provide a substantial increase in dynamic range over other typical transducer designs as a result. The woofer also features a tempered paper cone and a cast aluminum basket for increased heat dissipation.

The high-frequency transducer is a 1-inch titanium composite diaphragm integrated with an Elliptical Oblate

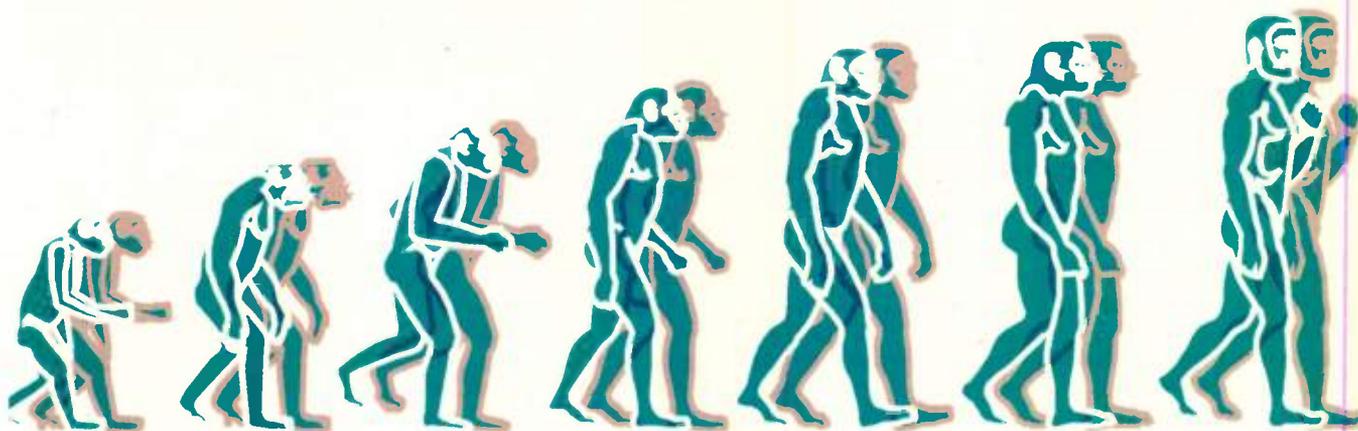
Spheroidal (EOS) Waveguide with 60- x 120-degree dispersion (-6 dB off-axis measurements), to help improve the spatial response. An active 24 dB/octave crossover at 2.3 kHz provides a smooth transition in both the frequency and time-domain response between low- and high-frequency devices. JBL states that the frequency response of the 25P is 70 Hz to 20 kHz ± 1 -2 dB, with a maximum continuous SPL of 106 dB @ 1 meter.

The front panel features a level control, a power switch, and a bi-color LED that indicates power and the onset of clipping in either amplifier section. The rear panel includes balanced and unbalanced XLR and RCA input connections that are mounted on an indented "shelf" pointing downward that keeps the rear of the cabinet free

from cables or connectors and enables flush mounting if needed. While I understand the reason for the rear-panel connectors to be mounted on the shelf, in practice this did make it rather difficult to quickly connect and disconnect the input and power from the unit. Four rear-panel DIP switches are available for high- and low-frequency response adjustments. Switch #1 adjusts low-frequency cutoff from 40 to 80 Hz, and switch #2 compensates for typical desktop boundary effects for use with workstations. Switch #3 boosts the signal 1.5 dB above 2.3 kHz, while #4 cuts it the same amount. Other features include integrated mounting points for horizontal or vertical orientation and a built-in high-pass filter for use with an optional subwoofer.



STUDIO SOUND



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The manual, while brief, is pretty comprehensive, covering a bit of the theory behind the design of the unit, speaker placement and connections, general operation, specifications, and wiring recommendations. The one thing it didn't clearly explain was the operation of all the DIP switches.

One of the great accessories available for the LSR25P is a carry tote bag, which basically looks like an airline carry-on bag, but has special compartments for two speakers. This is a great idea in that it saves a great deal of hassle for the traveling engineer (even on short trips between studios), and one that I wish were available for other popular monitors.

IN USE

Although the LSR25P are really meant for small environment applications, I used them for both recording and mixing during some of the new Steamroller album. Three things come to mind when listening to this monitor. The first is that you get a very "big" sound considering the size of the cabinet. Although there's really no deep bass below 80 Hz, what you do get is usable

and accurate. The second item is the dispersion, which is great. The output from the 25P's not only seems to fill up the entire room, but also is more accurate off-axis than most other monitors of any size. The third item is the small dip in frequency response at the crossover point. This is nothing new in monitors, as almost all have this. You just have to be aware of it. In general, my mixes came out pretty much as expected with the only surprise at the crossover point of 2-3k, where I was compensating for the dip in response by boosting a little. Once I was aware of this tendency though, I had no trouble.

CONCLUSION

For editing, the LSR25P's are perfect in that they have a big sound with a small footprint; the front-panel level control is a necessary convenience for this application. In many ways, the 25P's, with their high-quality, small cabinets are the answer to an editor's prayer.

I think these monitors are just great for the application they're intended; that is, to provide an accurate reference for workstations, edit suites, and small control rooms. The JBL Pro LSR25P carries a suggested retail price of \$489 each, while the tote bag carrying case retails for \$89.



LAB REPORT

MANUFACTURER: JBL, 8400 Balboa Blvd., Northridge, CA 91329. Tel: 818-894-8850.
Web: www.jblpro.com

SUMMARY: Big-sounding, small-footprint powered monitors that are easily adaptable to workstation and small control room applications.

STRENGTHS: Big sound. Small size. Response tailoring DIP switches.

WEAKNESSES: "Shelf-mounted" connectors can be hard to access.

PRICE: \$489 each

EQ FREE LIT. #: 104

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CIRCLE 15 ON FREE INFO CARD

InnerTube MM-2000 "Mag Mic" Tube Microphone

InnerTube's unique tube mic provides illuminating sound quality

BY BOBBY OWSINSKI

There are not many products that come along that garner instant attention based just on their unique looks, but the InnerTube MM-2000 "Mag Mic" is one of them. For instance, when I first brought the microphone to Front Page Recorders and showed it to owner Biff Vincent, he immediately grabbed it from my hands and took it to each of the three studios for all to see. And not only that, every one of the producers, engineers, and artists were so intrigued by the interesting look that they all clamored to try the mic first.

Why, you might ask? Because the Mag Mic is a good old-fashioned large-diaphragm tube microphone built into the casing of a two-cell Mag Light flashlight. The brainchild of Innertube Audio's Stayne McLane, the MM-2000 is an offshoot of some of his other products: the Atomic Squeeze Box compressor, the "Tube 87" tube retrofit for Neumann U 87, and the "450-Tube" tube electronics retrofit for AKG 450. But even if the packaging is irresistible, it still has to hold its own sonically, which the MM-2000 does very well indeed.

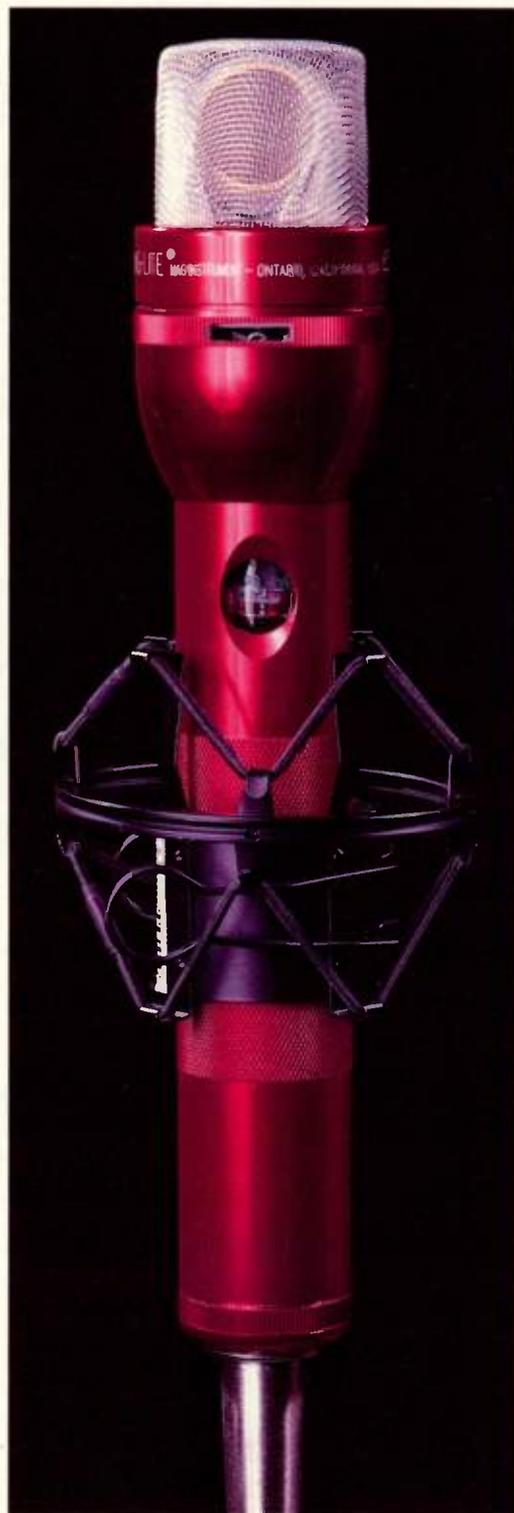
THE SPECS

Well, there aren't many specs actually. With a veritable museum of old tube gear to compare his creations to, McLane is an inventor of the old school in that he keeps working until it sounds right, not specs right. As an example, his first attempt in tube mic design used the venerable 6072 tube, but when he went to make a second one, he inadvertently mis-wired the tube socket. After noticing the

mistake, McLane decided to experiment with a tube that might be a direct fit in the mis-wired socket and found a 6DJ8 (very popular with hi-fi people since Marantz used it in preamp circuits in the '50s). Although the new tube fit, McLane never had any luck with it in previous experiments. Turns out the new tube sounded great, while the previous 6072 sounded broken in comparison, and a new circuit version was born. Now McLane uses a NOS (new old stock) Phillips 6922, which is pin-for-pin compatible with the 6DJ8.

If there's anything to the Mag Mic, as well as McLane's other products, it's the "less is more" philosophy. Most InnerTube products use a minimum of circuitry and only the highest-grade hand-selected components he can find. And if he can't find a product of high enough or consistent enough quality, he has them built, as is evidenced by the specially wound output transformer in the MM-2000.

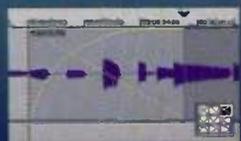
In fact, the MM-2000 features that rarest of animals, the high-gain, yet low-noise circuit that actually puts line level out directly from the mic. Because of the high output, there is a three-position switch on the power supply to attenuate the signal if necessary. This provides full output, 10 dB, or 24 dB of attenuation. A 20 dB pad is also located on the mic itself to attenuate an excessively hot signal if needed, although this seems unneeded thanks to the high headroom of the circuit.



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CIRCLE 29 ON FREE INFO CARD

New hard disk recorders were all over the place at this fall's AES convention. A fair amount of the buzz was at the Mackie booth.

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CIRCLE 18 ON FREE INFO CARD

EQ LAB REPORT

MANUFACTURER: InnerTube Audio, 115 W. Gutierrez, Santa Barbara, CA 93101. Tel: 805-963-3941. Web: www.gr8music.com/InnerTube_Audio/innertubeaudio.html.

SUMMARY: A serious mic in unique packaging, the Mag Mic delivers everything you would expect from a high-end tube mic.

STRENGTHS: Line-level output. Multiple polar patterns. Great tube sound. Cool packaging.

WEAKNESSES: How could a mic that looks this unique have any weaknesses?

PRICE: \$3,000 EQ FREE LIT. # 106

The MM-2000 comes with an internally regulated outboard power supply. As with most tube microphones, the polar pattern control resides on the backside of the supply and is continuously variable from omni to cardioid to figure-of-eight. Regarding the large diaphragm capsule, McLane is somewhat close-lipped, stating only that it is of "European origin."

As for the unique packaging, McLane states that it came about out of necessity after spending large sums of money on custom metal work and dies for his previous products. "Where else can I get a highly machined, anodized, serial-numbered device in two colors any time I need it?" he laughs. "I have a reputation for stealth packaging. My personal Mag Mic uses a Superman lunch box for the power supply. People get a kick out it."

IN USE

I used this mic on a variety of acoustic sources with great results. On acoustic guitar, it had the typical quality of a good microphone in that it made a mediocre instrument actually sound great, in this case much bigger and brighter sounding than the actual instrument really was in the room.

I used it outside a kick drum in place

of what would normally be a U 47-FET (about 1 foot outside the cutout of the drum head), again with excellent results.

The mic has tremendous headroom and the line-level output was such that no mic preamp was needed. The end result was enough bottom that no additional EQ was required while the top end remained clear and clean. Set on cardioid, the focus was distinct enough to pretty much isolate the kick from the rest of the kit as well.

On vocals, again the MM-2000 rose to the challenge of both a screamer and a soft singer. The mic handled the screamer from a foot away with no hint of overload, while on soft vocals the sound was

again huge while retaining the high-end clarity so often missing with expensive large diaphragm mics. While trying a variety of mic amps (Avalon, Hardy, even the on-board preamps of the SSL G+), all seemed to couple well with the MM-2000 as long as the pad was inserted, but the unit sounded best connected directly into a compressor then right into the recorder.

The MM-2000 is available directly from InnerTube audio for \$3,000. A stereo version (in a three-cell Mag Light case) is also available. Try a Mag Mic. It'll definitely throw some light on your recording.

The MM-2000 features
that rarest of animals,
the high-gain, yet
low-noise circuit
that actually puts
line level out
directly from the mic.

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SURROUNDED BY SOUND

M Audio Delta 1010 Audio Interface

A great-sounding cross-platform multichannel audio interface from M Audio

BY CRAIG ANDERTON

MidiMan has always seemed like one of the more underrated companies in the biz — for years they've produced solid, cost-effective products that may be short on glitz, but that rate high on performance. M Audio is an offshoot that produces digital audio-oriented products; this review covers their flagship cross-platform computer audio interface, the Delta 1010.

WHAT IT IS

There's no shortage of audio interfaces, but each carves its own niche. The 1010 is a 10 x 10 interface with 24-bit/96 kHz resolution (see sidebar, "Ins and Outs"). It includes eight channels of audio I/O, stereo S/PDIF, and a single-port MIDI interface. There's no ADAT, TDIF, or S/PDIF optical I/O, although it is possible to expand the system (see sidebar, "The

Delta Family"). Therefore, the 1010 is best-suited for analog-oriented studios, especially those that don't use digital mixing and routing capabilities. In fact, using the included mixer application, you can record directly to S/PDIF through the 1010 without using another audio application. One limitation is that there's no input clipping indicators. (There are input meters, but I prefer to also have actual clip indicators.)

The hardware concept is familiar: a PCI host card with coax S/PDIF in/out, along with a DB-25 connector that connects to a 1U, rackmount breakout box. An array of drivers are available, including DirectX, ASIO MME, ASIO, ASIO2, Linux, Mac (Sound Manager, ASIO, and ASIO2), EASI (beta), and Nemesys GigaSampler and GigaStudio.

The AC adapter is a "lump in the line" (as opposed to wall wart) type. It has an AC cord coming out of one side of the transformer; emanating from the other side

is a cable that goes to the breakout box, so you can easily route the transformer away from any sensitive lines.

INSTALLATION

Installing a new audio interface is always a cause for trepidation, but,

EQ LAB REPORT

MANUFACTURER: M Audio, 45 E. St. Joseph St., Arcadia, CA 91006-2861. Tel: 626-445-2842. Web: www.midiman.net.

SUMMARY: Underneath a plain vanilla exterior lies some extremely good-sounding converters, and the software drivers are solid.

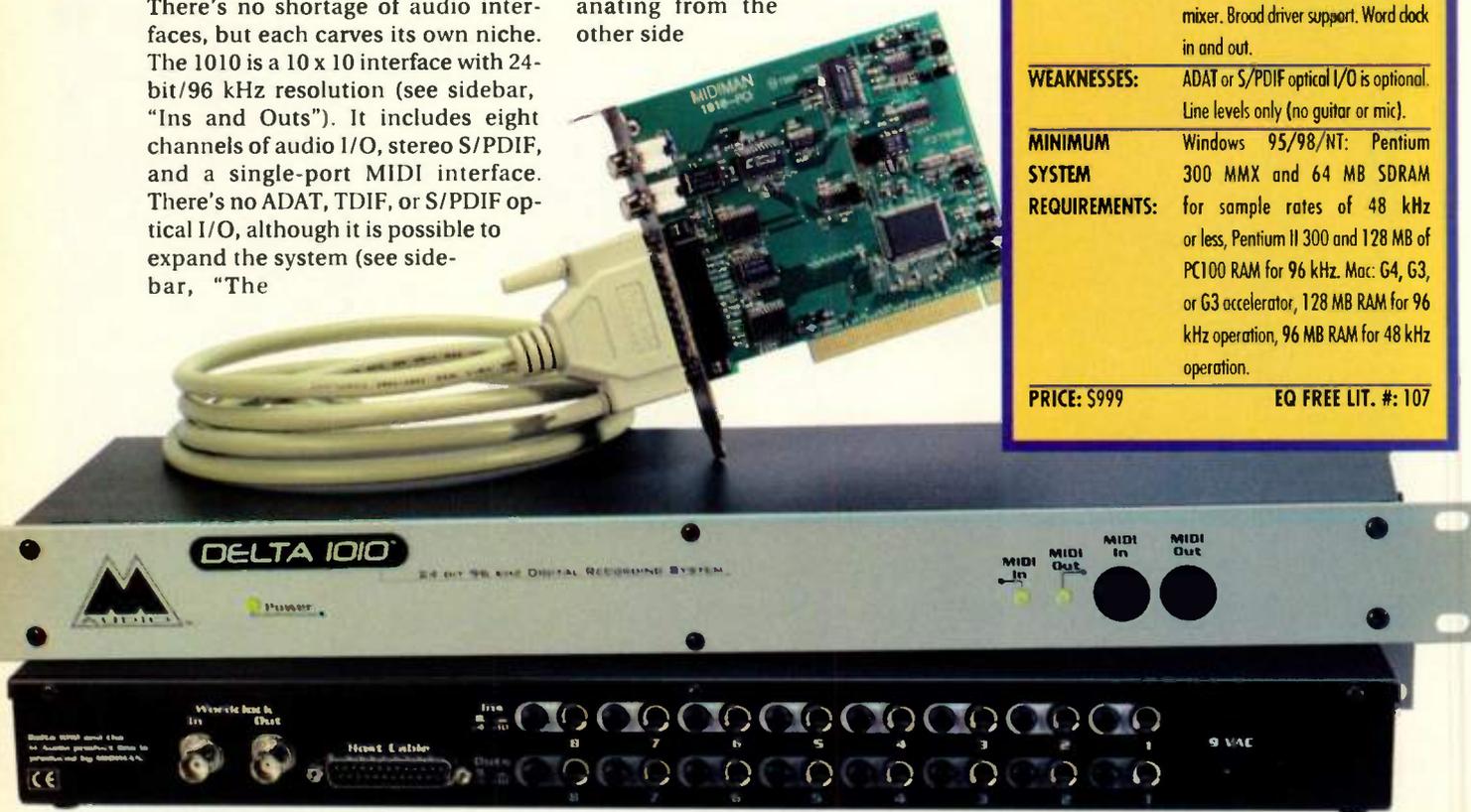
STRENGTHS: Excellent-sounding converters, especially given the price. Multiple sampling rates including 96 kHz. 24-bit resolution. Bulletproof. Simple installation. Uses only 1 IRQ and no DMA. Straight forward control software with monitor mixer. Broad driver support. Word dock in and out.

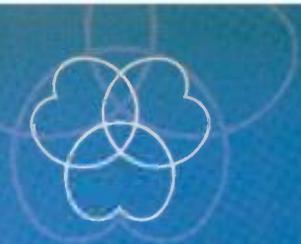
WEAKNESSES: ADAT or S/PDIF optical I/O is optional. Line levels only (no guitar or mic).

MINIMUM SYSTEM REQUIREMENTS: Windows 95/98/NT: Pentium 300 MMX and 64 MB SDRAM for sample rates of 48 kHz or less, Pentium II 300 and 128 MB of PC100 RAM for 96 kHz. Mac: G4, G3, or G3 accelerator, 128 MB RAM for 96 kHz operation, 96 MB RAM for 48 kHz operation.

PRICE: \$999

EQ FREE LIT. #: 107





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CIRCLE 02 ON  INFO CARD



FIGURE 1: The 1010 software mixer used with Cubase. Toward the lower right of the screen shot, note the window that shows which inputs are available to Cubase.

A FUN DIGITAL FLANGING TRICK

The analog output is about 1.4 ms late compared to the digital output, due to conversion time — but this can serve as the basis of a great flanging effect if you have a digital mixer with per-sample delay on the channels.

1. Feed the 1010's digital and analog outs into two of the mixer's input pairs.
2. Throw one of the channels out of phase temporarily, then adjust levels so that the two pairs of signals cancel. Now put the channels back into phase again.
3. Vary the digital out's delay from 0 samples down to about 400–500 samples, and at about 1.4 ms you'll hit the flange's "through zero" point. The sound is eerily close to the tape-based flanging sounds of the '60s.

THE DELTA PRODUCT FAMILY

M Audio offers several variations on the Delta theme, namely:

Delta 1010-AI (\$249) This works with the 1010 to provide ADAT optical in and out (eight channels total).

Delta 66 (\$499) This junior version of the 1010 is a 6 x 6 card (four analog, stereo S/PDIF) with a smidge less dynamic range.

Delta 44 (\$399) Like the Delta 44, but 4 x 4 analog (no S/PDIF).

Delta DiO 2496 (\$299) Designed for stereo operation, this PCI card does 24-bit analog-to-digital conversion with 24-bit analog or coax/optical S/PDIF out.

under Windows 98, the Delta 1010 installed the first time around and did no violence to the system. Whew! Also note that the installation was very straightforward — plug in the card, connect the rack box, turn on the computer, install the software, and you're good to go. There are no situations involving multiple shutdowns or restarts, and the system requires only one IRQ and no DMA. I tested the Delta 1010 with a Q Performance Systems PC, which has a Celeron A processor overclocked to 850 MHz and 256 MB of RAM.

In case you need 32 channels of analog I/O, the installation procedure allows using up to four cards,

which communicate via sample-accurate sync.

THE MIXER

Fig. 1 shows the mixer working in conjunction with Cubase (other ASIO-compliant programs work similarly). The grayed-out Audio System Setup window appears when you go into Cubase's "System" menu item, and sets up how Cubase will interact with the 1010. From there, you can go to the Delta Control Panel, which has four main tabs.

The mixer, which is active in the screen shot, is simple — no EQ or plug-in options — but effective. The mixer boasts 36-bit resolution, as well as a master level control. With ASIO you can solo, mute, pan, or change levels of individual channels, as well as gang channels into stereo (adjacent odd/even pairs only). Each channel also has metering, but I'd like to see a numeric readout that shows the peak level (or at least has a clipping indicator).

The Patchbay/Router (fig. 2) determines what feeds a particular hardware output pair — WAV out, monitor mix, S/PDIF in, S/PDIF in with left/right reverse, or one of the four hardware input pairs. The Hardware Settings screen sets

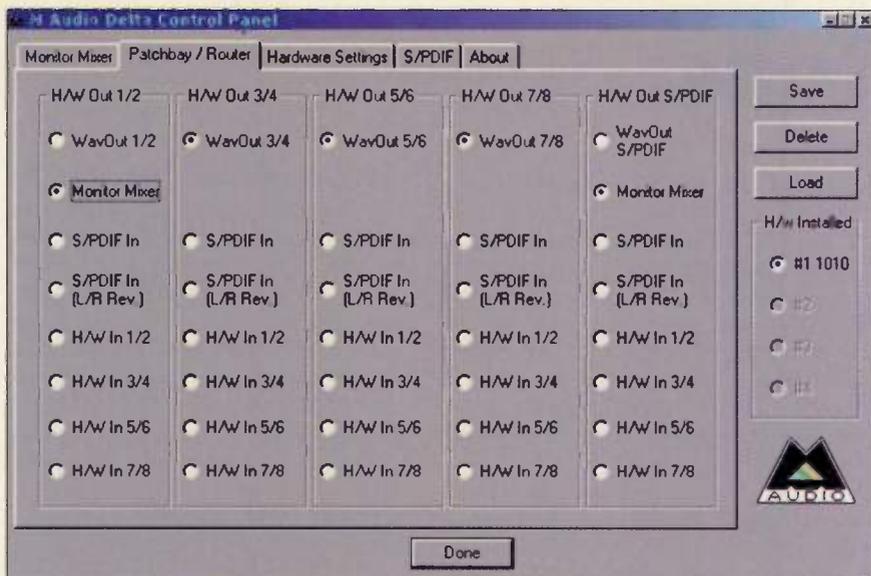


FIGURE 2: The 1010's Patchbay/Router screen.

the master clock (internal, S/PDIF in, or word clock), along with sample rates (all the common ones from 8 kHz to 96 kHz, including 88.2 and 9.6 kHz).

Furthermore, the software can transform S/PDIF into something that looks more like an AES/EBU digital signal, as controlled on yet another page. However, according to the 1010's manual, this ruse doesn't work with all digital gear. Nonetheless, I tested the AES ins of a DA7 mixer and TASCAM DA-30 DAT, and the 1010's S/PDIF worked fine. The S/PDIF page also provides for adding emphasis, although that's not commonly done these days. One final touch is that you can save, load, and delete all control panel settings, which could be useful if you work on multiple projects with varying requirements.

SO IS IT SPECIAL?

The 1010 is well built, professionally constructed, and even well packaged (kudos for including a nearly 10-foot long DB-25 patch cable!). The manual is quite good, despite some layout glitches; the tutorials should be helpful to those who need to navigate the treacherous waters of sound card installation and inter-program compatibility.

But any attempt to describe the 1010 solely in terms of specs misses the point, as the sound quality and dynamic range (around 108 dB) is the main attraction. Recording the same signal into Cubase in both digital and analog, then spitting them out via digital and analog and listening to the results, resulted in no tangible sonic difference. It

seems that the 1010's converters don't inject any personality into the signal at all; they're the proverbial "straight wire with gain" (or I guess in this case, "straight wire with conversion").

The bottom line is value for bucks. Audio interfaces may not be the most exciting products in the world, but it sure is nice to run across one that's reasonably priced, doesn't color the sound or stress your computer, and works right out of the box.

Craig Anderton is the creative director of MusicPlayer.com, as well as the author of the classic book Home Recording for Musicians. He has produced, played on, mixed, and/or mastered 17 major-label releases.

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MIDI out with activity indicator LED
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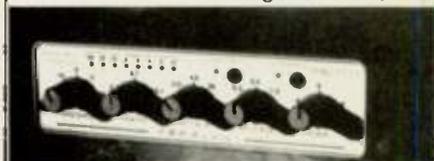
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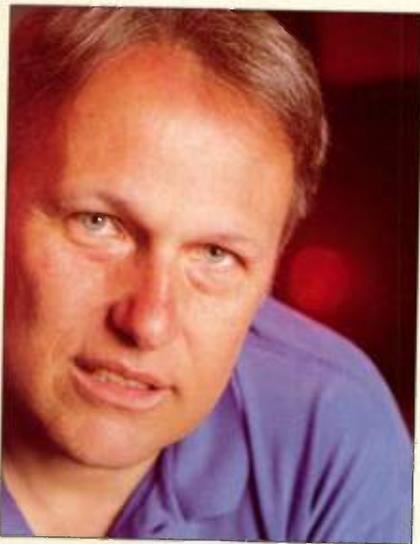
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CIRCLE 54 ON FREE INFO CARD

When All Else Fails....

Someday, someday,
it's gonna happen —
you'll have to rebuild
your computer's
O.S. from scratch



BY CRAIG ANDERTON

It's almost inevitable that, at some point, you will have to reformat your main hard drive and reinstall your computer's operating system. The cause could be a hardware crash, an unstable system, or an inability to boot that no diagnostics program can fix. Or you may want to do a voluntary re-install to slim down a bloated system or install a new version of your operating system.

Starting over from scratch is a drag, because, realistically, you'll lose at least a day due to reconfiguring and reinstalling everything that's crucial to your work. The Mac seems to handle reinstallation better than Windows, because it's easier to install Mac operating system software in general. Re-installing Windows can be somewhat of a hassle, but you can reduce the severity of the hassle if you're properly prepared.

PROGRAM AND DATA DISKS

Hopefully you've kept your data and pro-

grams on separate drives. This allows reformatting your program drive without losing data. If you have data on the program drive, either copy it to the data drive, or back it up to some other media. Make sure you're copying to another physical drive, not just another partition on the program drive; partitions won't survive a reformat. Remember, once you reformat, whatever was on the drive is gone forever.

If you have a particular desktop color scheme you want to use in the re-installed system, go *Start > Run >* then type *Sysedit* and select the WIN.INI file. Find the section with the heading named [colors], and copy its parameters so you can paste them under [colors] in the re-installed WIN.INI file.

GATHER YOUR INSTALLATION CDS/DISKS

You'll need these after reformatting. Make sure you have working distribution media (CD, floppy, DVD, etc.) and any authorization codes, dongles, passwords, or whatever else might be required to install and (if necessary) unlock copy-protected media. Check the availability and integrity of all these *before* you reformat.

CHECK YOUR UPDATES

Ideally, whenever you download an update or patch from the 'Net, you save it in a folder on your data drive as well as back it up (if that hasn't been part of your work flow, now's the time to start). If the update is on a floppy or CD, then make sure you have it on hand — you don't want to have to go back to the Web and do a bunch of multi-megabyte downloads just to get your software back up to spec.

PULL ALL CARDS EXCEPT VIDEO

When it's time to reinstall, I pull all cards other than a video card and reinstall each card one at a time. Windows' plug-and-play works reasonably well, but this allows testing the system after adding each element to make sure all is well.

DO YOU HAVE A STARTUP DISK?

If you created a startup disk when you installed Windows, pull it out of storage and make sure it works. If not, imme-

diately go to *Settings > Control panel > Add/Remove Programs > Startup Disk tab* and create a bootable floppy. You'll need this to boot your system for formatting, and to read from the CD-ROM. Note that the Windows 98 startup disk includes CD-ROM support, but a Windows 95 startup disk does not, so you have to chase down the CD-ROM drivers and copy them over to the startup disk (another reason to upgrade to 98).

REFORMAT YOUR C: DRIVE

After verifying one last time that the C: drive doesn't have anything you can't re-create, it's time to cross your fingers and reformat. Start the computer with the startup disk in the drive; when asked if you want to start up with CD-ROM support, say yes. At the A: prompt, type: "Format C: /s"; Windows will ask if you're sure you are enough of an adult to understand the implications of what you are doing. Say yes, and start formatting. Don't forget the "/s" part — that's necessary to create a bootable disk.

OPTIMIZE WINDOWS

Specify the monitor and video card you're using (*right-click on the Desktop > Properties > Settings*), make any tweaks in Windows' appearance as desired, restore colors if needed, then do any required optimization for digital audio (see sidebar, "Building the Better Digital Audio Beast").

INSTALL YOUR SOUND CARD AND AUDIO PROGRAMS

Go through the installation program, then verify that sound is working properly before continuing. Now install your various pieces of audio software, initiate updates as needed, and test briefly after installation to make sure all is well. Follow the same procedure with other boards (video capture, sampler, etc.) and other pieces of software, like your Internet browser.

MAKE A BACKUP

At a point where the system seems stable, backup the program drive — perhaps just after installing the O.S. and a sound card, or go for something more ambitious that backs up the O.S. and

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Entries must be postmarked no later than August 31, 2000. Please read all rules carefully, and then sign your name in the space provided. If entrant is under 18 years old, the signature of a parent or guardian is required.

1. Each song submitted must be contestant's original work. Songs may not exceed five (5) minutes in length. No song previously recorded and released through national distribution in any country will be eligible. Songs may have multiple co-writers, but please designate one name only on the application. Contestant may submit as many songs in as many categories as he/she wishes, but each entry requires a separate cassette or CD, entry form, lyric sheet, and entrance fee. One check or money order for multiple entries/categories is permitted. (Entrance fee is non-refundable. JLSC is not responsible for late, lost, damaged, misdirected, postage due, stolen, or misappropriated entries.)

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4. Winners will be chosen by a select panel of judges comprised of noted songwriters, producers and music industry professionals. Songs will be judged based upon melody, composition and lyrics (when applicable). The quality of performance and production will not be considered. Prizes will be awarded jointly to all authors of any song. Division of prizes is responsibility of winners. Void where prohibited. All federal, state, and local laws and regulations apply.
5. Winners will be notified by mail and must sign and return an affidavit of eligibility/recording rights/publicity release within 14 days of notification date. The affidavit will state that winner's song is original work and he/she holds all rights to song. Failure to sign and return such affidavit within 14 days or provision of false/inaccurate information therein will result in immediate disqualification and an alternate winner will be selected. Affidavits of winners under 18 years of age at time of award must be countersigned by parent or legal guardian. Affidavits subject to verification by JLSC and its agents. Entry constitutes permission to use winners names, likenesses, and voices for future advertising and publicity purposes without additional compensation.
6. Winners will be determined by January 15, 2001, after which each entrant will receive a list of winners in the mail. CDs, cassettes and lyric sheets will not be returned.

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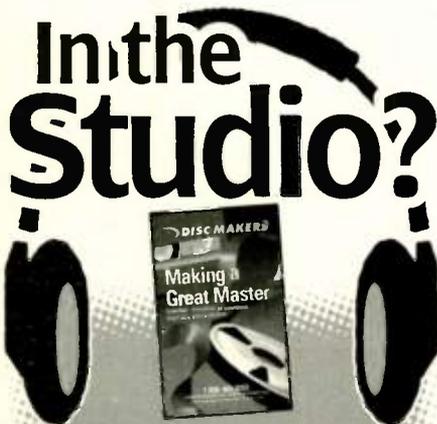
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DISC MAKERS

CIRCLE 12 ON FREE INFO CARD

BUILDING THE BETTER DIGITAL AUDIO BEAST

There are several O.S. tweaks you can do that optimize performance for digital audio. Computer consultant Pete Leoni suggests the following:

• Go *Start > Run >* type *Sysedit*. In the SYSTEM.INI file, add the following lines (the text is case-sensitive, careful) under [vcache]:

```
[vcache]
MinFileCache=4096
MaxFileCache=4096
```

- Set color to 16-bit (24 bits wastes CPU cycles and isn't really necessary for audio work).
- Turn off all Windows sounds and screen savers.
- Turn off power management features in the BIOS and in Windows. This prevents hardware from taking a nap at inopportune times.
- If you have DMA-compatible drives, make sure DMA is checked for the corresponding hard disks listed under Device Manager (accessed via *Start > Settings > Control Panel > System > Device Manager* tab).

several programs. In any event, this will come in handy if something "breaks" during subsequent installations, so you don't have to go back to square one (see sidebar, "A Way to Avoid Re-Installation?").

Continue on your way, re-installing, updating, and generally getting back to normal. When the job is done, put all the distribution media, key disks, passwords, etc. back from whence they came.

And now your computer's ready for another 10,000 miles. You'll probably

notice an increase in performance — computers seem to like being tidied up. Good luck, and just remember to always check a drive over very carefully before reformatting.

Craig Anderton has been involved with 15 major-label releases as a player, producer, or engineer; he also wrote the classic book Home Recording for Musicians. Check out his forum at MusicPlayer.com, for whom he serves as creative director.

A WAY TO AVOID RE-INSTALLATION?

There's a \$50 Windows program called Go Back (by WildFile) that lets you restore your system as it was prior to a crash or other disaster. That sounds like the perfect solution when your O.S. goes insane, and the program is indeed very clever. However, there are two drawbacks with audio: Go Back has to physically save the "delta" between the earlier configuration and the one that blew up, so you need to allocate a certain amount of hard-disk space to it. With audio's big file sizes, it's possible to use up the allocated space, which means Go Back won't be able to go back very far. You have to either allocate more memory, or, more practically, test new programs and hardware with small files at first to check whether any new system changes are stable.

Another problem is that Go Back remains quite busy in the background, which means occasional flurries of disk activity. However, in general it seems smart enough to know when to leave well enough alone; it hasn't caused me to burn any coasters yet, for example.

But any hassles kind of evaporate the first time it saves your butt, as it did with me when I installed a video capture card and the install didn't "stick." Every time I booted up the computer after that, the O.S. would crash when it recognized the board. I set the Go Back machine for an hour earlier, and the system was back to normal. I tried installing the card again; this time, it worked. Very cool!

AD INDEX *For fast and easy information, use the reader response card in this issue*

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Requiem for a Heavyweight

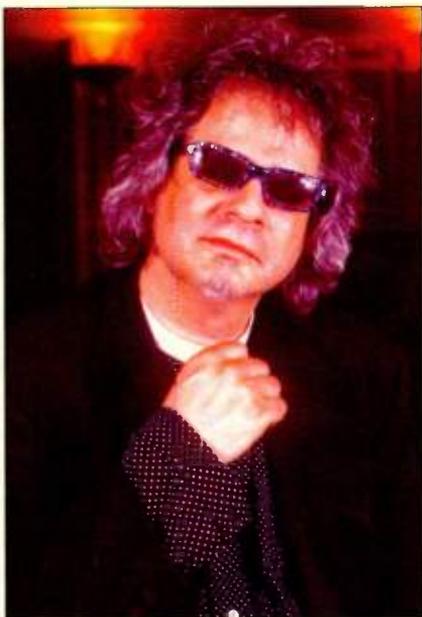


PHOTO BY JONATHAN POSTAL

In which the author mourns the loss of one of his most generous mentors

BY AL KOOPER

If you love keyboards, especially piano, try this someday: Choose a moment or two where you're feeling particularly inspired or uninspired and you know you won't be interrupted. Play the track "One Of Us Must Know" from *Blonde On Blonde* by Bob Dylan, preferably off a CD. Now tear yourself away from Bob's voice and just zero in on the piano playing for the length of the song. Is there anything more magnificent that a studio keyboardist could have played on that track? I think not.

That's what separated Paul Griffin from the boys. Unfortunately, I was one of the boys. But, in my favor, Paul liked me and imparted pearls of his wisdom to me when we found ourselves together in the same room. He could be the gentlest, most generous instructor a young man could ever have wished for.

You'd never know it from his two-handed, thundering legacy. Paul must

have played on thousands of sessions. He was requested specifically by Steely Dan, the Isley Brothers, Chuck Jackson, and Burt Bacharach, to name but a few keyboard connoisseurs.

Bacharach would hire Paul the day before a session and teach him to play exactly what Burt would have played (usually an amazingly complicated and precise part), so that the next day Bacharach-the-composer could comfortably produce the record from behind the console, instead of from behind the piano. He trusted Paul (and only Paul) implicitly. It was a responsibility that I know Paul treasured.

Others hired Griffin for his imagination and musicality. His gospel background, combined with his love of classical music, produced a hybrid of melodic lyricism combined with soul-shaking rhythmic phrasing. Listen to the piano on Don McLean's "American Pie" — vintage Paul. "Twist & Shout" by the Isley Brothers? Another session in Paul Griffin's busy schedule. Donald Fagen and Walter Becker loved Paul's musical personality. They found it fit their groove on the albums *Aja*, *Gaucho*, and *The Royal Scam*. I personally love Paul's keyboards on the old Chuck Jackson records, "I Don't Wanna Cry" and "Any Day Now." Chuck was an early admirer and supporter of Paul's. Six months ago Chuck called to tell me that Paul was ill and needed our help. He needed a liver transplant and funds were minimal. You don't get health insurance so easily toiling in the studios of New York City. And if you do, they know how to wiggle out of subsidizing large items like organ transplants (even if you're a master of the Hammond B3).

An amazing concert materialized two months later. People who loved Paul came out of their personal woodworks and joined together in a true gesture of respect, admiration, and rescue. Ashford & Simpson, Paul Simon,

Isaac Hayes, Chuck Jackson, Bernard Purdie, Mary Wilson, Cissy Houston, yours truly, and a handful of other Paul Griffin devotees played for two incredulous audiences at The Bottom Line in New York City. Paul Shaffer was the MC. At the end of the first show, Griffin was coaxed out of the audience to play "Bridge Over Troubled Water" behind Paul Simon. Ever the professional, Griffin carried the store-bought sheet music as his musical cue card, not wanting to chance marring Simon's performance in any way.

That's the way Paul was. He made you sound good no matter what kind of music you handed him. Nothing could really be more disparate than the styles of Don McLean and The Isley Brothers, but Paul could perform magnificently in either genre, and in all those in between.

It's hard for me to comprehend that he's no longer physically with us.

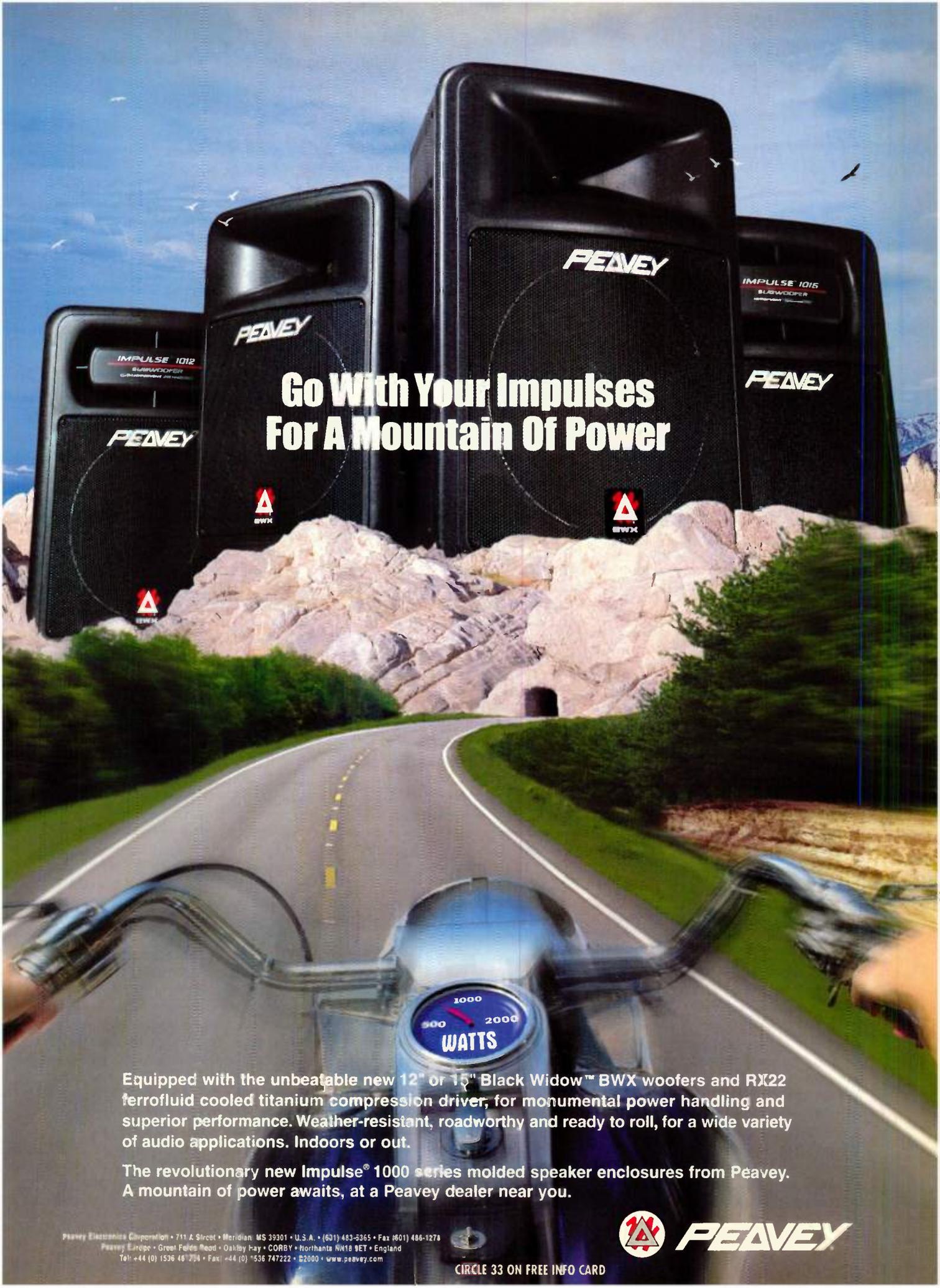
The beauty of recorded music, however, is that despite its short century of existence, barring a thermo-nuclear incident, it can live forever. So when we least expect it, Paul will surely be right alongside us — when we hear "Will You Still Love Me Tomorrow" by The Shirelles, "Think" by Aretha Franklin, or even "Raindrops Keep Fallin' On My Head," if we're watching *Butch Cassidy & The Sundance Kid* at

three a.m. on cable (it could happen).

Paul Griffin passed away on June 14th, 2000, at the age of 62, unable to secure a proper liver transplant. Recently, I asked him how old he was — he just shook his head and smiled: "If I tell you my age, you'll just judge me as someone that age and I don't think that's fair." I immediately put that one into my repertoire.

As uber-arranger Charles Calello used to sadly point out when we lost a great musician: "Now everyone else moves up a notch." Extremely reluctantly, this time around, Charlie.

Nothing could really be more disparate than the styles of Don McLean and The Isley Brothers, but Paul could perform magnificently in either genre, and in all those in between.



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Re-energizing yourself when burnout threatens

BY JIM BORDNER

Hello, and welcome to *Guest Room Warrior*, a brand new column in your favorite project studio magazine. I'm Jim Bordner, proprietor, composer, producer, sales manager, and cleaning crew at Gravity Music. I started as a hobbyist, with a couple of synths and a plastic mixer in a spare bedroom in my home. Five years ago, I quit my job writing ad copy and took my home studio pro. Since then, I've made a good living and had more fun than any three humans should be allowed, working for ad agencies, Fortune 500 companies, video and film shooters, even the guy who put the new furnace in my house.

As any *EQ* reader knows, some of today's best audio work is being produced in pretty unconventional locations. From the gold-record-guy who converted his garage into a full-on tracking space to the local jingle writer cranking them out in a basement studio to recordists working out of guest rooms, project studios are at the forefront of modern music production. I like to refer to those of us who work professionally in those environs as "Guest Room Warriors," thus the name of this column.

In future articles, I'll be trying to share the knowledge I've picked up along my path, as well as knowledge from other pro-

fessionals, both inside our industry and out. My goal is to help you have more fun, find more business, make more money, and do better work with your project studio. Let's get underway!

Obviously, we have the coolest jobs in the world. If you don't believe it, ask anybody. I never tire of the slightly awed look that comes over people when they ask me what I do and I reply; "I record music." (I'm assuming that you in L.A., NYC, and Nashville get less of that "gee-whiz" reaction than the rest of us do.) But there isn't anybody who doesn't get tired of the grind, and that includes recording engineers. Did you ever feel like the main character in a bad detective novel?

"The Monday morning sun burned through the blinds like a Stevie Ray solo. Last night's coffee was congealing in a cup on the nightstand, and I took a long, committed swig. The cold black lacquer hit my gut with the ferocity of +10 dB digital noise. Somebody had turned the Migraine pot up to 11 and ripped the knob off. I'll check the schedule book, I thought; maybe there's a good reason to live today. No such luck. Two VO sessions before lunch, and that god-awful band from last week lurching back to do overdubs on their masterpiece. The lead player had every button in the control room sussed, but still hadn't unraveled the mystery of the six little silver ones at the far end of his guitar neck. The thought of watching him struggle through 117 takes, complaining all the while how I wasn't capturing his "tone," made the coffee bubble in my stomach. Maybe it wasn't too late to go back to school. Accountant...yeah, that sounds like a nice life."

Oh my brothers and sisters, it's rough waking up to a Mike Hammer world. Remember when everything about this work was new and exciting?

Yeah, so do I. No, we can't feel like that all the time. But we can all get some of that feeling back once in a while, and remind ourselves why we started in the first place. Allow me to suggest a few concrete approaches to the abstract problem of battling burnout.

Play some music for a change. I know many of you don't just record music, you're also good musicians yourself. But who gets a chance to rock out anymore? Put yourself back in touch with your enthusiasm by starting a hobby band. Once

a month or so get some buddies together in your studio, set up a few mics, ice down your favorite beverage, and roll tape on a champagne jam. When the players get hungry, send out for pizza and listen to the playback. Laugh at your clams and praise each other lavishly for the peak moments. It's a complete gas, and it reminds you why those kids making their first CD are so, like, totally stoked by the whole process. If you don't play, invite some friends who do, and spend your time experimenting with the fun of capturing a live performance. Either way, it will put the spring back in your step.

Do something for free. You'll never know how much your expertise can be appreciated until you give it away to someone who can't afford it. Choose a charity that means something to you and offer to record PSA's for them *gratis*. Pick some scruffy but impressive singer you've been hearing in the local coffeehouses and offer to record his or her demo for nothing. Volunteer to let local high school students "shadow" you for a day. All you get is gratitude, but that's pretty good pay.

Develop a new skill. Maybe you're a monitor fiend who knows everything about cones and amplifiers. Why not try your hand at designing and building a pair? You might cobble something together that blows your commercial monitors away, and, even if you don't, you'll see them from a new perspective. Try your hand at synth programming or work on creating a sample library. When burnout began sliding over me recently, I decided to rebuild my old Strat, even though I've always left woodworking and soldering to guys who were better at it than me. I spent a week finishing a chambered mahogany body and wiring up an active pickup system. It cost me more time than money, but the results are well worth it. The guitar is devastating to look at, sounds great, and is a joy to play. More important, I learned to solder electrical parts, a skill that anyone who works with all these cables should not have neglected for so long. You'll get a new sense of pride when you break out of your patterns and tackle something new.

Take lessons. Speaking of trying new things, maybe you're just feeling crispy because you've decided there's nothing left

to learn. If that's the case, switch off the auto-pilot for a while and challenge yourself mentally. Sign up for a job-related class (or a class in any subject you're really interested in) at the local U. Take instrument lessons from someone who can really stretch you. Humans are engineered to learn things (which explains our unusually big brains); if you stop learning, you'll get bummed.

Write down your Job From Hell. Write down a description of the worst possible job on the planet...not a specific profession, just a description of the worst possible scenario. What kind of people are there? How much responsibility do you have? What's your boss like, what's your workspace like, what hours do you work, etc? Include everything you can think of. When you're finished, compare the description to what you're doing now. If your Hell Gig includes working in a quiet, dimly lit windowless room surrounded by hard-to-please creative types, maybe you are in the wrong profession. But I'm guessing you'll see a huge contrast between studio life and

your Job From Hell, and realize just how good you've got it.

Examine your business direction. All you wanted to do was record rock 'n' roll, and you spend 80 percent of your time tracking industrial voice-overs. Or you love radio drama and can't stand these karaoke singers wasting your time. Sounds like your business went the wrong direction. A vacation isn't going to fix this; it's going to require some serious measures.

If you're the boss, begin moving your business toward the kind of work you truly enjoy. Use your network to find new opportunities. Join a professional organization that caters to the kind of clients you want. Plan some direct mail or trade advertising. It won't happen overnight, but start taking steps now and you'll find you feel better with each step you take.

If you work for someone else, evaluate your relationship with your employer and decide if you can express your concerns to your boss. Talk with him or her about your dissatisfaction (with the work, not the job), and ask what you can do to help bring in clients that would better feed your soul.

If you don't have this kind of relationship with your employer, it may be time to slap a fresh coat of *schmaltz* on that resume.

There are as many ways to relieve burnout as there are people. But whatever works for you, *do it*. Don't succumb to the idea that burnout is permanent. We probably shouldn't even use term "burned out" to describe this feeling, because it implies a kind of permanence: Like last weekend's charcoal fire, it says we're finished, reduced to ashes, *kaput*. But that's not the case. We've just fallen temporarily out of love with our work. Take some time to rekindle your romance with your work. (There's that fire metaphor again....) When you do, you can be sure that the music has remained faithful and constant, and is always waiting to love you back.

And if you find it really is time to move on, you can always go into the hard-boiled detective game.

Jim Bordner makes music, records audio, and studies the twisted anthropology of studio customers at Gravity Music. You can reach him at jim@gravitymusic.com.

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CIRCLE 64 ON FREE INFO CARD

PCI Bandwidth and Audio



Optimizing Apple's new G4 PowerMacs for audio applications

BY DAVID FRANGIONI

Welcome to the Studio Tech column! First off, I'd like to talk a little bit about my experience in the field, and then we'll dive into an introductory topic to get our feet wet together.

It's interesting how the terms for "technician" have evolved over the years. It used to be that a "tech" fixed analog tape machines and consoles. But when my career as a tech began in the early '80s, I was referred to as a "MIDI specialist/engineer." That term was supposed to inform hiring minds that I dealt with anything MIDI and computer-based. Here we are in the year 2000, and my life still revolves around anything computer-based. This year, though, I'm not a MIDI specialist/engineer. This year, I'm known as an integrated service solutions provider for music technology, and I troubleshoot, repair, and detangle just about anything plugged into the wall and used to make music. Here's a little background that will help explain why I'm writing this column.

I started out as a drummer at age six and I never put the sticks down. By my

early teens, I was playing five nights a week. Something, though, attracted me to the mixing console, the synthesizers, the Roland Echo, etc. I'm not sure whether it was the challenge of being able to use that equipment or just the sheer fun that I had making noises with it. Either way, I was hooked.

In the mid-'80s, I began assembling my own MIDI/multitrack studio and recording bands for free just to gain experience. At night I would gig to make a living. Soon I found myself with a pretty nice MIDI rig, and I was fortunate to find work with legendary producer Fred Zarr (very hot at the time with Madonna, Debbie Gibson, Ziggy Marley, and others), Reggie Lucas (he wrote "Borderline" and "Never Knew Love Like This Before"), and John Khiel (a great producer who always

pushed the envelope of technology).

I entered the late '80s solving MIDI problems, doing drum and synth programming, and teaching MIDI. I teamed up with E.U. Wurlitzer, the leading music technology retailer in Boston, in 1989. We formed a partnership that had E.U. selling the gear and me selling the service. It was a little ahead of its time, but it worked. I made a living and got experience on just about every piece of gear sold. Then something really cool happened: I got a call from Tom Hamilton of Aerosmith. Tom hired me to do some MIDI work, and 11 years later, I'm still actively consulting for the band. I worked as their in-house engineer/technician as well serving as their resident studio builder (each member is on their second or third home studio — when technology works, it's contagious). Besides working for Aerosmith, I freelanced for Bryan Adams, Elton John, the Rolling Stones, Chick Corea, and many others. Along the way, I created three sample CDs for East-West.

Currently I have offices in Nashville, Miami, and Boston. I have a great team of technologists that shares my passion for solving problems and providing solutions. As an audio engineer, I've been involved in surround sound mixing for the past four years. In fact, I co-produced the first-ever surround sound music CD for DTS back in 1996. And yes, I still do lots of MIDI troubleshooting!

Enough about me, where do we start talking about music technology? So many topics, so little time. Let's discuss getting a Mac working properly for recording audio to hard disk. Of course, there are different things to consider depending on which program you use. However, there are basic principals that you should understand regardless of which piece of audio software you rely on. What is currently being asked of a Macintosh or PC computer for audio recording is so taxing on the CPU that there's very little room for error. Let's take a look at how to start optimizing Mac settings.

The first part of the system software that can interfere or affect hard disk recording is the graphics/video portion of the system. This means the "Appearance" and "Monitor" control panel settings and the "ATI" video extensions need to be set correctly. Several audio programs require that the system font be set to a specific font and size, as well as requiring that "smooth all fonts" is not checked. The smoothing feature requires higher overhead for screen drawing.

This is similar to the reason that the monitor/video settings are important: Any PCI card that goes inside of a Macintosh requires a portion of the available bandwidth. As with anything, there's

In the future, the G4 Sawtooth (as it is referred to by Apple) will be a monster, capable of more simultaneous streams of data than ever before.

only so much bandwidth to go around. The more that's reserved for the audio card(s), the better. Graphics are a PCI hog — at least they can be if your settings aren't optimized for audio. By turning off the "smooth fonts" and also carefully setting the Monitor control panel, you can better control the bandwidth issue. Typically, a setting of 256 colors is better than a setting of "thousands" or "millions." Also, a resolution of 1024 x 768 or 800 x 600 is usually recommended. These settings can affect a variety of things. I remember, for example, that an older version of Studio Vision would crash excessively at higher screen resolutions (that problem has since been fixed). These settings determine how much bandwidth the graphics card needs to draw the screen.

The ATI extensions also impact how much bandwidth is used for graphics. These extensions (ATI is a set of five or six depending on your Mac) work in concert with the factory-fitted graphics card. If the extensions are on, then the screen draws optimally. If they're off, you could see some odd redraws (a

problem if audio waveforms need immediate updating). However, the alternative can be excessive PCI bus errors as audio, SCSI, and graphics all battle for a piece of the available bandwidth.

The new Apple G4's are a little different, as they don't use the PCI bus for graphics. They have an additional bus called the AGP bus (popular for a long time in PCs). AGP on a Mac is only used for graphics. Great, you might be thinking, the PCI bus is free from the graphics bandwidth battle. And it's true, but the new G4's introduce a whole new set of issues. They have two discrete external FireWire ports (each using their own bus), USB, serial (if something such as a G-Port is connected where the modem usually is resident), PCI, AGP, and a whole new bus speed. This means, that, in the future, the G4 Sawtooth (as it is referred to by Apple) will be a monster, capable of more simultaneous streams of data than ever before. In our dreams for now. There are still a lot of software and hardware "tweaks" that Macintosh hard-disk recording developers need to make before we see that

promise fulfilled. Right now, the additional busses are causing some problems depending on the configuration of the system. When it's fine-tuned and working, it's blazing fast and pretty awesome. When it doesn't work, it's very frustrating and can cause more pain than most techs care to experience. Stay tuned for more on the G4 Sawtooth in future columns.

Well, that's it for now. Hopefully you will take some of this information into consideration as you're setting up your computer for hard-disk recording. Future Studio Tech columns will cover digital audio, word clock, MIDI, computers, hard disks, and many other topics related to planning, putting together, troubleshooting, and using project studios. Thanks for tuning in and thanks to EQ for the opportunity to share information with you. Please feel free to contact me at [E-MAIL TK]. I love to talk technology, and although I'm busy (aren't we all?), I'll always try to help. You may even see your e-mail become the topic of a future column. **EQ**

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CIRCLE 68 ON FREE INFO CARD

File Sharing is Fun, Part I



PHOTO BY STEVE JENNINGS

Share your music
with the world....

BY JON LUINI AND
ALLEN WHITMAN

By now we've all been deluged with the Big Story of how Napster and other file-sharing applications are changing the music distribution landscape. Let's bypass the legal squabbles and get right to the guts of the matter: Why is it useful and how does it work? Think of it as a giant, free promotional machine that makes your music available to anyone with an Internet connection. To share your music with others, you'll want a broadband connection of some kind because, even with MP3 compression, music files are big. Napster must be running constantly as files will be traveling back and forth over the network at all times. This would severely tax a mere 56k dialup. (One of the benefits of uploading to a site such as IUMA or Riffage: they share your files for you and are always on so you don't have to be.) Nonetheless, if you want to see how the whole thing works for yourself, let's get into it!

What is file sharing? It's the act of swapping files (in this case: music) between users (listeners like you and us)

across a network (the Internet). You'll need a computer connected to the Internet. If you have broadband connectivity and leave your computer on, it's easy to have the program running so people can download files even when you aren't there. You also need MP3 files! Since you're sharing only your own MP3 files (which, of course, you *are* since otherwise you may be breaking the law, *wink-wink*), we trust you have already created them (if you need help, look at www.fezguys.com, column #27). Remember to set the ID3 tags since they help Napster identify correct artist and song title. ID3 is one of the ways MP3 files include information about the song you're listening to. Rather than store actual genre names, the ID3 tag stores a number that matches a pre-assigned genre. In your FezGuy's humble opinion, this system is less than perfect since current genres are extremely limiting. Bands (and even songs) often reside within multiple genres and current technologies easily allow multiple listing. It's just laziness.

NAPSTER 2.0 BETA 6 (WINDOWS ONLY)

Besides the core file sharing their application provides, Napster has some Web-based features. We'll take a look at those first, and then dive into the application.

NAPSTER: AS A WEB UTILITY

In many ways Napster's recently launched "New Artist Program" (NAP) isn't much different from other artist upload sites. This is where you can "find the best up-and-coming musicians by typing a band name in the search box, or browse the list of genres below." Artists can enter themselves in Napster's database, including a short description, latest news, influences, hometown, home page, and genre (more than one can be listed). Unfortunately, the genre listing is limited to what's available in ID3 tags ("Rock/Pop," "Classical," etc.). At least Napster lets you assign more than one genre to your band.

To sign up go to artist.napster.com and click "create profile." The bottom of the application form has plenty of legalese (no doubt influenced by recent lawsuits). It is clearly stated: Napster takes no responsibility for what you make available, you represent you have the rights to share this info and music, no porn links allowed, and, of course, Napster can change

the rules any time. After submitting the artist profile form, Napster requests (but does not require) you to snail mail (or fax) a copy of their "Declaration" form to help them show the RIAA how Napster is helping artists legally promote their own music. But printing something out, slipping it into an envelope, and slapping a stamp on is asking a lot in this day and age. Providing your e-mail address is sufficient.

Napster's bulletin board system ("Digital Music Forum") has a promising area called "Emerging Artists" to discuss promo and encoding, but it turns out to be mostly band name and URL posts. This is a common problem with various Web sites' limited attempts to provide community. Without a moderator, nothing stays on topic. If Napster had someone posting tips and encouraging on-topic discussion on a regular basis, the DMF might actually be a useful resource.

NAPSTER: THE EXPLODED VIEW

After downloading the Napster app (only a minute or two at broadband speeds), it is simply and quickly installed. First we must agree to their lengthy terms and disclaimer. We click "Yes" without reading it (who does?), but are told we "must read to the end of the license agreement before we can proceed." We scroll to the end and click through. Too much lengthy legalese, gang. Five bulleted items would be reasonable for people to read and grok. (This applies to all software companies, not just Napster!)

We are then prompted for our connection speed (to be displayed to other users downloading files from our computer). Another prompt to choose a username and password follows, and then we're logged into Napster's central server. Napster, being a program designed to share files, does the next obvious thing: it asks if it should search our hard drive for MP3 (or Windows Media) files to share. Since we want to select only a few songs to share, we say, "No."

Next, we select the specific folder(s) we wish to share files from. At this point it makes sense to create a folder on our desktop called "Napster Music" so as not confuse ourselves later, but we find there's no easy way to access our desktop folder in Napster's dialog box. Instead, we click our way down to C:Files. It would be nice if Napster included a "New

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Directory" option in this dialog box.

Napster then does some networking stuff (which, in our case, appeared to fail) and then told us if we aren't behind a firewall (we aren't) to ignore the networking stuff it just did. We do. Will it still work? It does. We're greeted with the default start-up screen: some greeting text with a status bar showing our nickname, how many files we're currently sharing (0), and how many files are, at this moment, available on the constantly morphing network (over 485,000 files in nearly 5,000 libraries [each library is an individual user],

totaling nearly two terabytes in size).

Chat rooms are provided for every available genre, plus you can create your own room if you'd like something more personal. We create and join a "fezguys" channel for fun. Hey look! There we are! No teeming masses of users join us, alas. Conveniently, it's possible to simultaneously be in more than one group. We spend a moment in discussion with others over in the "'70s" group and return to the task at hand.

Our main options are "Chat," "Library," "Search," "Hot List," "Transfer,"

and (good for them!) "Help."

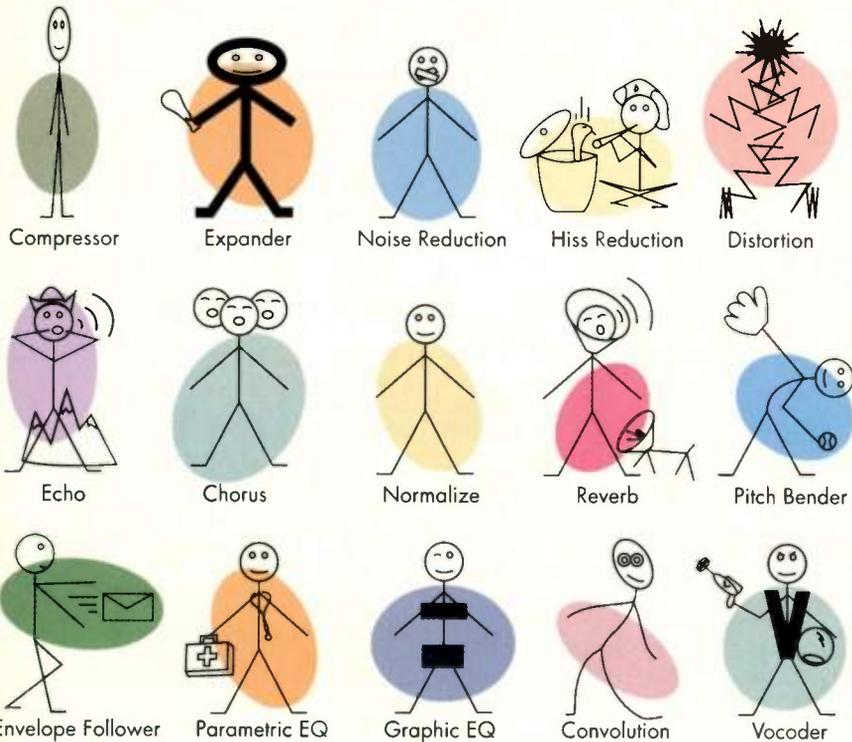
We want to share some files of our own music, so we go to "Library." We're greeted with a split screen where all files in our library (currently none) will be displayed on the top section while the bottom section offers advanced playlist controls. For some reason, we can't drag and drop our MP3's into this area. There isn't an "add items" button, either. We march back to our desktop and copy the files into our C:Files folder (created earlier). After moving our files over, we right-click in the Library window and choose "Refresh Library" and *voila*, there are our files. What's more, our status bar now says we have three files available to share.

Having successfully made three files available, we verify the system is working by searching for our files on the Napster network. We search. "No Matches" is returned. Accessing the "Help" area illuminates nothing. Perhaps it just takes a while for the network to catch up. This is disconcerting. After a bit of research, we conclude that searches don't check your own local library since you obviously already have the files. Testing with another computer isn't conclusive either. We discover that Napster has multiple servers but those servers are not (yet) connected together. Users searching the network may end up connecting to a server that doesn't have any of the songs they're looking for. Connecting again later (to a different server randomly selected by the app) might work, but there are no guarantees. Hopefully Napster will link their servers together very soon. For now, an artist cannot reliably tell people: "Go to Napster and search for <bandname>" and be assured their music will be found. The Napster software will, by default, remain running in the background (an icon is displayed in your system tray next to the current time) after you exit the app. This allows people to continue downloading from your libraries. Since we're sharing our own music, this is all right with us. But it's easy to forget and later we may wonder why our connectivity is so slow, not realizing someone is downloading a file. To temporarily disconnect from the server, simply open up Napster and select "File">"Disconnect."

To search for other music, click the "Search" section and enter an artist name or song name (or portion thereof). You'll receive a list of matches. As would be expected, a lot of music is available that suppliers obviously don't have the

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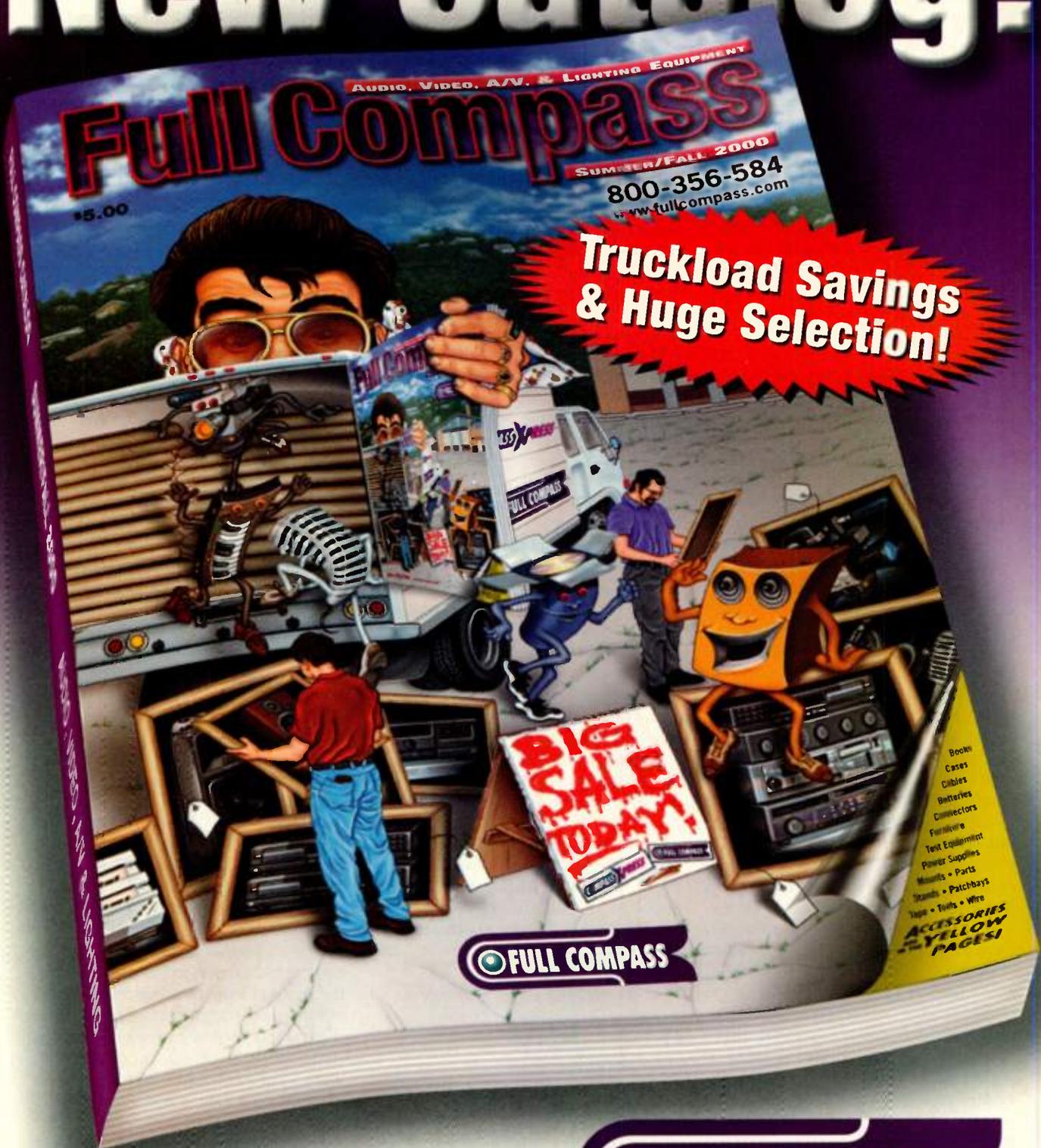
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"NOAH'S ARK"

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"That's all whammy bar stuff," he explains. "Another good example of that kind of thing is on my last record — *The Ultrazone* — in the song called 'Frank,' which is a dedication to Frank Zappa. It doesn't sound like his music, but there's a guitar solo in there that's all harmonics and whammy bar, and it's probably one of the most interesting things I've done."

Vai has no fear of using equalization during recording. "The EQs on my board [a customized 40-channel API] are really nice; you can pump a lot of bottom end into them and they don't get too woofy. And the top end is never that sharp, shrill ice pick thing. So the APIs are really great for clean guitars. On the distorted rhythm guitars and melody line in 'Noah's Ark,' I also used Pultecs. Those are fantastic; you can pump so much bottom end in and they just don't sound like anything else. They're just the fattest, warmest EQs around."

His compressor of choice is the venerable LA-2A, generally strapped across the bus carrying the composite guitar signal. He rarely compresses the effects returns, however, noting that, "if you start compressing effects, it can get really one-dimensional."

What did Vai think of the unorthodox approach taken to recording "Noah's Ark," where he was playing to a bare prerecorded backing track instead of actually being in the room with the musicians? "Well, for the past few years I've actually preferred to overdub my guitar parts without the interaction. I don't know why, but I just felt more comfortable, I felt less on the spot; I felt like if something broke, I could fix it — if I didn't get a good take, I could just punch myself through it. But," he adds, "I'm growing really weary of that because there is a great energy and a hype that you can get when you're actually interacting." Bissonette notes that "Steve has an incredible ability to make it seem that we were all in a room together. He would listen to the rhythms that we did when we played the backing tracks and he would just close his eyes and jam along like it was all going down for the first time. And he's got such a great ear — two of 'em, in fact! — that he would go back and catch all these kicks and figures with us. Even in my drum solo, when I do a figure in 7, he'd just rewind the tape and do it right with me. The bottom line is that, the minute Steve puts his hands on a tune, it immediately has his signature." **EQ**

DEEP PURPLE

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automatically go to a place very *near* the note, but then they push up or down on the neck, fine tuning the finger position based on what they hear. If they can't hear clearly, there can be tuning problems."

"What we found even more of a challenge," Morse says, "was coordinating the time of the band with that of the orchestra. For the band, it's metronomic. It's right there — no question. But the conductor of an orchestra may give a very long downbeat. Sort of like 'anytime you feel like it, come in.' Often Paul would give the downbeat and start on beat two before the orchestra would start on beat one! This is universal. An orchestra doesn't really get *time* from the conductor, they get *cues*, and those cues have a lag. So we arrived at an understanding with the percussion section of the orchestra. They subdivided and pushed the orchestra to meet us in the exact metronomic time that the band was keeping, serving as the critical link between the band and the orchestra."

Glover says the phenomena as akin to "talking and hearing only an echo of your voice, behind you. Paul was very aware of this and worked hard to bridge the gap between the band and the orchestra, pushing the orchestra to come up to our sense of time. And I think we pulled back a bit to accommodate the orchestra, especially [drummer Ian] Paice."

Roger describes audience reaction to the performances at The Royal Albert Hall as "overwhelming. We don't normally play so many new songs in one show, so the audience was excited about that — they knew that it was a very special night. Each member of the band made an individual entrance to the hall and the emotion was tremendous — we all got standing ovations." And well they should! **EQ**

TERRY DATE

continued from page 80

he's playing his part. I want to make the sound coming through the studio monitors sound close to what he's used to hearing live. So, by using his live rig, you're just eliminating a variable. And with Stephen, he's got an effects switcher that is all programmed with what he wants to do. In rehearsals, he's worked out all these different tones that he likes. As long as it's coming out of his cabinet the way he had it in rehearsal, then it's just a matter of making sure that I bring it into the control room the right way. Stephen's another

really fast, talented guitar player. I would say he tends to lean more on the heavier, crunchier sounds, whereas Wes Borland will lean more into the atmospheric sounds. Although they both do both, of course.

By this point you've made a few albums each with Limp Bizkit, Deftones, Pantera...you have an ongoing relationship with a lot of these bands. Do you sort of make yourself a fifth or sixth band member in a situation like that?

I like to think of myself more as the band's studio soundman. I don't like producers who put their own signature on every record they do. I like for the band's personality to come through. I only get involved with arrangements if there are two or three opinions about something and I have to figure out a compromise. Some bands require that more than others. But I would stop short at "fifth member." Although I do maintain relationships with people as friends. For instance, I didn't work on Pantera's new record, but I talked to them a lot while they were making it. And I went down to Texas for a few days when they were in the middle of recording to hear how the progress was going. It's tough when you're producing yourself, basically, for the first time. So I tried to be as helpful as I could, without being a nuisance. **EQ**

GUITAR LOOPS

continued from page 88

approach is on the *Vince Andrews Solos and Sections* CD, part of Sonic Foundry's "Loops for Acid" series (#AR002). Although the solos are done on a sax, the CD really shows the power of phrases when creating cut and paste solos.

9. Notate Tempo and Key in the Patch Name

Another advantage of playing a part in context is that, presumably, you'll know the tempo of the backing tracks. I recommend creating file names that begin with tempo, then key, then a description (e.g., 135_E_intense technofunk wah-wah). Take advantage of long file names when naming loops; be as descriptive as possible.

10. Scratching and Rhythmic Effects

Don't forget that guitars can make some wonderful rhythmic, percussive effects. For example, try strumming muted strings while working a wah-wah, or using a volume pedal to fade washes of distortion in and out on the beat. These kind of textures can really dress up a track, and can be far more interesting than synthesized sounds. **EQ**

ROLAND VG-8

continued from page 91

adding a touch of the VG's internal delay or modulation to your taste and plug the VG's mono output into channel two of your amp or mixer.

Now, by mixing the volume of each output (a volume pedal or two can be of great help) during various song sections, you can easily create a much more studio "overdub" sounding solo. But don't stop there — try this trick with other patches such as mixing dirty and clean chords, wild FX, and more, all of which can really widen out your sound.

• Virtual/Acoustic/Electric

If you happen to own one of Godin's new LGX-SA or LGXT Roland-ready guitars, besides being an ultra-playable and great-sounding guitar, you'll have the added advantage of its very acoustic-sounding L.R. Baggs piezo pickup's output to blend into the mix. Truly a great way to create an acoustic/electric/VG sonic *menage a trois!*

• The Virtual Amp Meets the Virtual Guitar

I've found using a Line 6 AX-2 TubeTone guitar amp is an almost perfect solution for mixing together a direct guitar signal with a VG-8. (I say "almost perfect" because the AX-2 only has mono inputs even though its output is stereo.) Simply plug the VG's direct guitar output into the AX-2's *Guitar* input, and the VG's own mono output into its *AUX* input. This way you can use the AX-2's array of modeled amps and effects on the direct guitar signal, while the VG stays clean as can be with its own volume, EQ, and reverb if needed. An added digital twist is that you end up with great virtual guitar models (VG) and virtual amp/FX models (AX-2) all within the same rig!

• S1 Upgrade Trick

If you have an original VG-8 with the S-1 Expansion Kit*, contrary to what the Roland manual says, you can install it any number of times using the following trick: Hold down SYSTEM and WRITE while turning on the VG-8 with the S-1 inserted. Next, choose OK and the card will upgrade your machine regardless of the number of previous installations.

* The S-1 Expansion Kit was the first major upgrade to the original VG-8. Released in 1996, it has now been replaced with the VG-8 EX and is no longer manufactured. But all is not lost for those VG-8 folks without an S-1

Expansion, as there are many VG-8 owners out there who are more than willing to help by loaning out their own personal Expansion Kit. For more information set, your Web browser to www.vg-8.com/upgrade/.

• Resources

For even more VG tips and tricks, be sure to check out the VG-8 support site at www.vg-8.com. You'll find a fantastic user forum with hundreds of free patches, MP3 music samples and compilation CDs, a great FAQ, news on the latest VG accessories, VG-compatible guitars, and a very friendly group of dedicated VG-8 and VG-88 users. This site is truly a must for

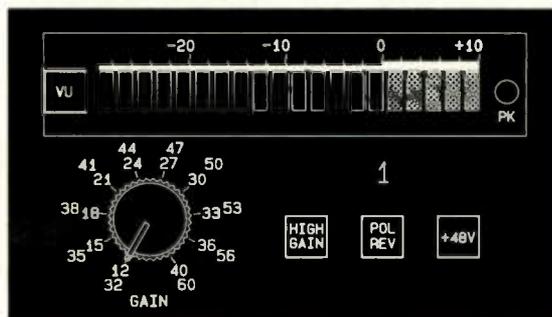
anyone even remotely interested in Roland's powerful VG series.

If you're a Windows 95 MIDI user, check out the online V-Library software site at <http://vg-8.com/vlibrary/> — a great free tool for easy organizing and sharing of patches.

Special thanks to Aure Prochazka, creator of VG-8.com for his help with this article.

Mikail Graham works very hard at virtual practicing on his virtual guitar, which he plays through his virtual amp at virtual gigs in Northern California, which is fast becoming the world's first virtual state.

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- **VU-1 LED meter option** (shown) provides great metering where you really need it.
- **Jensen JT-11-BMQ line-output transformer option** (Jensen's best).
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FEZGUYS

continued from page 132

rights to. Searching for guitarist Joe Satriani's tune "Borg Sex" found dozens of matches. But searching for songs by the quirky and defunct prog-rock band "Brand X" resulted in only partial matches of other songs and bands (including James Brown's "Papa's Got A Brand New Bag," and, as if on cue, Metallica's track from Mission Impossible, which started the recent legal battles). Advanced search options are available. To download a file listed in the search output, simply double-click on it. Note that files are downloaded into your Napster directory and will be available to others by default so move them to another directory if you don't wish to share them (and possibly be a target for lawyers).

You can use the "Hot List" to keep track of specific users (and files they are sharing). The "Transfer" section shows the status of any files you are downloading as well as anyone who is downloading files from you. The "Help" section has fairly good coverage of different Napster functions, as well as general questions

users may knock their heads against. Napster loses points for requiring their software to be removed and re-installed to perform the simple task of changing your nickname.

Napster promises a Macintosh version "soon." Your FezGuys are encouraged by Napster's "New Artist Program" for developing new (and useful) services for musicians (not only the pirates!). However, we feel it appropriate to point out that the same problem that plagues many upload sites is even more of an issue for file-sharing apps. Namely: How do people find your music? Users still have to know to search on your band name or song title, and that presumes they already know who you are. It's the age-old question....

We'll continue looking for technology that addresses this situation. A few years ago there was a brief fad of music recommendation services (such as Firefly). Perhaps it's time to resurrect a good idea. Listen.com can also be of use here.

Next month, we'll explain several other file-sharing applications (Macster, Gnutella, Scour Exchange) and how they compare to Napster. We won't mince words. We don't know how, and our blender is stuck on "frappe." **EO**

CREED

continued from page 84

and some ways I didn't. It made the guitar a little less distinct, but in that sense it also made it bigger than life."

OUTSIDE THE LOOKING GLASS

To get a bit of an outside perspective on the guitar sounds, John had Kirk Kelsey, Creed's live sound engineer, assist on *Human Clay*. "I'm a diehard [Shure SM]57 guy," John admits. "I put them up on guitars and nine times out of ten they do exactly what I want. Kirk has a lot of Audio-Technica mics and talked me into trying AT4050's on the dirty guitars and AT4033's on the clean guitars. He was saying they worked well for Mark live, so we put them up. It was an interesting sound and it was different, so we decided to go with them. On most — if not all of the record — we used the A-T mics. The 57's tend to make the guitar fit right into the mix. I think the A-T's made the guitar sound like a whole band or something," John laughs. "It was a wider range of frequencies and I liked it. But, again, it made me work harder in the mix!"

Stay tuned to EQ for more on John Kurzweg.

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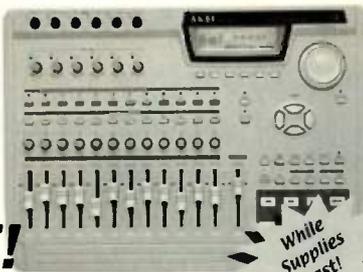
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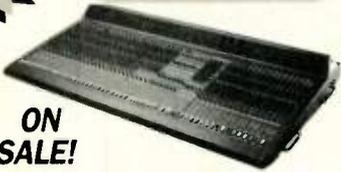


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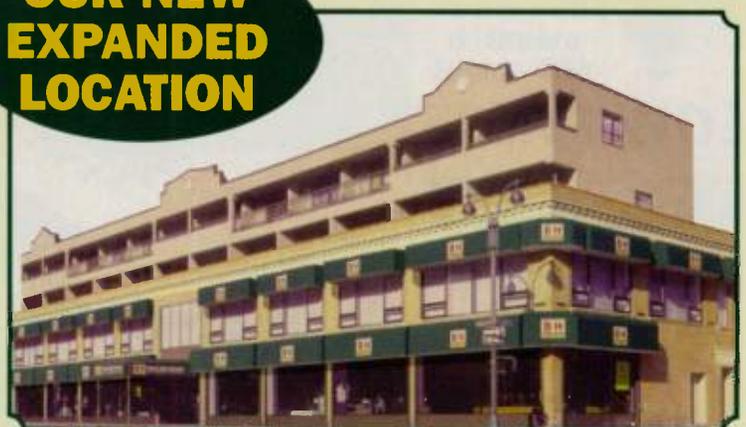
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FEATURES—

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

Pro Tools LE

- Supports 24 tracks of 16 or 24-bit audio and 128 sequenced MIDI tracks
- Sample-accurate simultaneous editing of audio & MIDI
- Real-time digital mixing capabilities include recall of all mixing parameters, support for edit and mix groups and complete automation of all volume, panning, mutes and plug-ins.
- Route and mix outboard gear in realtime
- MP3 and RealAudio G2 file support (Mac)



- Two plug-in platforms offer multiple options for effects processing—RealTime AudioSuite (RTAS) is a host-based architecture that allows an effect to change and be dynamically automated in realtime as the audio plays back. —AudioSuite is a file-based format, that renders a new file with the processed sound.
- Bundled RTAS plug-ins include, 1 and 4-band EQ, Dynamics II- compressor, limiter, gate and expander/gate, Mod Delay - short, slow, medium, and long delays with modulation capabilities for chorus or flange effects and dither. AudioSuite plug-ins include Time Compression/Expansion, Pitch Shift, Normalize, Reverse.

MIDI Functions

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



MOTU AUDIO Hard Disk Recording Systems

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

THEY ALL FEATURE—

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



1296 24-bit/96kHz Interface Features—

- 24-bit, enhanced multi-bit 128x oversampling 96kHz converters
- A-weighted signal-to-noise ratio of 117 dB
- 12 Balanced XLR inputs and outputs can support two simultaneous 5.1 mixes
- AES/EBU I/O with sample rate

- conversion both in and out
- Compatible with existing PCI-324 cards (requires new PCI-324 driver)
- Connect up to 3 1296 interfaces to one PCI-324 card for a total of 36 inputs and outputs or mix and match the 1296 interface with up to three of the other MOTU audio interfaces



2408 mkII FEATURES—

- 7 banks of 8 channel I/O: 1 bank of analog, 3 banks of ADAT optical, 3 banks of Tascam TDIF, plus stereo S/PDIF
- Custom VLSI chip for amazing I/O capabilities
- Format conversion between ADAT and DA-88

- 8x 24-bit 1/4" balanced analog I/Os
- 24-bit internal data bus for full 24 bit recording via digital inputs
- Standard S/PDIF I/O for digital plus an additional S/PDIF I/O for the main mix
- Sample-accurate synchronization with ADATs and DA88s via an ADAT SYNC IN and RS422



1224 FEATURES—

- 24-bit analog audio interface
- State-of-the-art 24-bit A/D/A
- Simultaneously record and play back 8 channels of balanced (TRS), +4 dB audio
- 24-bit balanced +4 XLR

- main outputs
- Stereo AES/EBU digital I/O
- Word clock in/out
- Dynamic range of 116 dB (A-weighted)
- Front panel displays six-segment metering for all inputs and outputs
- Headphone jack with volume knob

CD RECORDING/MASTERING

ALESIS

MasterLink ML-9600 High-Resolution Master Disk Recorder

The Alesis MasterLink ML-9600 is a 2-track 24-bit recorder that combines hard disk recording, CD burning, digital signal processing, and mastering functions to create compact discs in the standard "Red Book" 16-bit/44.1kHz format, or high resolution CDs that utilize Alesis' revolutionary CD24 AIFF-compatible technology. MasterLink is capable of recording and playing up to 24-bit/96kHz resolution CDs using the inexpensive, readily available CD-R media. The amazing sonic quality, powerful built-in tools and CD24 technology offers a uniquely versatile and affordable solution for everyone from large commercial audio facilities to project studios and recording musicians.



FEATURES—

- 24-bit 128x oversampling analog to digital and digital to analog converters
- Supports 44.1, 48, 88.2, 96 kHz sample rates and word lengths of 16-, 20- and 24-bit
- 20Hz-20kHz frequency response at 44.1/48 kHz sample rates
- 20Hz-40kHz frequency response at 88.2/96 kHz sample rates
- 113dB signal-to-noise ratio (A-weighted)
- Matsushita ATAPI CD-ROM drive allows up to 4x CD burning using standard CD-R discs
- Built-in sample rate conversion & noise shaping to change sample rate & bit resolution as needed
- Reads and Writes 16-bit 44.1kHz Red Book Audio CDs
- Alesis' exclusive CD24 is a high-

- resolution mastering format that reads/writes files up to 24-bit 96kHz in the ISO 9660 disc format. AIFF compatible file format that can be read by MacOS, Windows and Unix computer platforms.
- Built-in 3.2GB IDE hard drive
- Hard disk max recording times 95 min. @ 24-bit/96kHz 310 min. @ 16-bit/44.1kHz
- Create and store up to 16 playlists containing as many as 99 tracks

Analog Inputs and Outputs

- Balanced XLR connectors (+4dBu input and +19dBu max. output)
- Unbalanced phono (RCA) connectors (-10dBV input and +5dBV max. output)
- 1/4-inch TRS headphone output with level control

Digital Inputs and Outputs

- AES/EBU balanced XLR inputs and outputs
- S/PDIF unbalanced phono (RCA) inputs and outputs

Editing

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

DSP Finishing Tools

- Equalization, Compression, Normalizing and Peak Limiting

Includes

- Infra red remote control and rackmount brackets

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The CDR631 offer all the features and functions of the CDR630, its popular predecessor, but adds many features and functions that were previously unavailable. Its full complement of digital and analog connections lets you record your own CDs from audio sources such as CDs, LPs, cassettes, DAT, or even a computer.



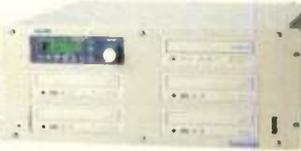
Features—

- Pro and consumer CD-R and CD-RW compatible
- Track titles can be saved and edited in CD-TEXT format that can be read on CD-TEXT compatible CD players
- Memory buffer that prevents the beginning of tracks from getting cut off
- Menu selectable SCMS copy protection
- Digital and analog record level and balance control
- XLR-balanced and RCA unbalanced analog inputs
- AES/EBU (XLR), Coaxial, and Optical digital inputs
- Unbalanced (RCA) analog and Coaxial digital outputs including Coaxial loop-out for unprocessed connection to other digital equipment
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Features—

- 2X, 4X, or 8X recording speeds
- 6.2GB IDE hard drive
- Editing functions include move, divide, combine or delete audio tracks, add or drop any index or sub index, and create track fade in or fade out
- Coaxial S/PDIF or AES/EBU digital input plus optical S/PDIF I/O
- XLR balanced and RCA Line inputs and outputs

- Automatic sample rate conversion from 32 and 48kHz
- Automatic CD Format Detection feature and user friendly interface provide one touch button operation
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- Records 24 tracks of 24-bit audio at 44.1 or 48 kHz, or 12 tracks at 88.2 or 96 kHz. Up to 24 tracks can be recorded simultaneously using any combination of digital and analog I/O.
- Supplied 9GB internal drive allows 45 minutes of audio across all 24 tracks.
- Wide SCSI port on the back panel allows you to add multiple drives. A front 5-1/2" bay available for installing an additional drive or an approved DVD-RAM drive for back-up.
- ViewNet MX, a Java-based software suite for Mac and PC offers DAW style editing of audio regions, dedicated system set-up screens that make set-up quicker and easier and track load screens that make virtual track management a snap. Connects to a computer via a standard Ethernet line.
- Can record to Mac (SDII) or PC (WAV) formatted drives, allowing later export to the computer. The Open TL format allows compatible software to recognize virtual tracks without have to load, reposition and trim each digital file.

Transport Controls-
Jog/scrub wheel
MIDI In, Out, and Thru ports are built-in for MIDI Machine Control.

Editing-

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

Built-In Synchronization-

- TBUS protocol can sample accurately lock 32 machines together for 384 tracks at 96kHz, or 768 tracks at 48kHz.
- Can generate or chase SMPTE timecode or MIDI Time Code
- Word Clock In, Out, and Thru ports

I/O Options-

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

Software Updates-

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

DA-78HR Modular Digital Multitrack

The DA-78HR is the first true 24-bit tape-based 8-track modular digital multitrack recorder. Based on the DTRS (Digital Tape Recording System) it provides up to 108 minutes of pristine 24-bit or 16-bit digital audio on a single 120 Hi-8 video tape. Designed for project and commercial recording studios as well as video post and field production, the DA-78HR offers a host of standard features including built-in SMPTE Time Code Reader/Generator, MIDI Time Code synchronization and a digital mixer with pan and level controls. A coaxial S/PDIF digital I/O allows pre-mixed digital bouncing within a single unit, or externally to another recorder or even a DAT or CD recorder. Up to 16 DTRS machines can be synchronized together for simultaneous, sample accurate control of 128 tracks of digital audio.



Features-

- Selectable 16 bit or 24 bit High Resolution audio
- 24 bit A/D and D/A converters
- >104dB Dynamic range
- 20Hz - 20kHz frequency response ± 5 dB
- 1 hr. 48 min. recording time on a single 120 tape
- On-Board SMPTE synchronizer - chase or generate timecode
- On-Board support for MIDI Machine Control

- Internal digital mixer with level and pan for internal bouncing, or for quick mixes
- Track slip from -200 to +200 samples
- Expandable up to 128 tracks (16 machines)
- Word Sync In/Out/Thru
- Analog output on DB25 balanced or RCA unbalanced
- Digital output on T/DIF or 2 channels of S/PDIF

A TO D CONVERTERS

APOGEE Rosetta 24 bit A to D Converter

The high-end quality analog to digital solution for the project studio. With support for both professional and consumer digital formats you can now record your audio at a higher resolution and with greater detail than standard converters found on MDM's, DAT's and DAW's. Ideal for mastering or tracking.



FEATURES-

- 24-bit, 44.1-48, 88.2-96 kHz Sample Rate ($\pm 10\%$)
- 116dB dynamic range (unweighted)
- Improved UV22HR for 16 and 20-bit A/D conversion

FRONT PANEL:

- Power switch • Sample Rate (44.1, 48, 88.2, 96kHz) selector • 16-bit (UV22), 20-bit (UV22) and

- 24-bit resolution selector • S/PDIF-ADAT optical selector • Soft Limit on or off • 12-segment metering w/over indicator & Vmeter Clear switch • Level trim

REAR PANEL:

- XLR balanced inputs • 2 AES/EBU for 88.2/96kHz 2 channel path. Coaxial S/PDIF, switchable S/PDIF or ADAT optical outputs • Wordclock out

LUCID AD 9624 24-bit A to D Converter

Transparent analog to digital conversion designed to bring your music to the next level. XLR balanced inputs feed true 24-bit converters for revealing all the detail of the analog source. 16-bit masters can take advantage of the AD9624's noise shaping function which enhances clarity of low level signals.



FEATURES-

- 24-bit precision A/D conversion • Support for 32, 44.1, 48, 88.2 & 96kHz sample rates • Wordclock sync input • Selectable 16-bit noise shaping •

- Simultaneous AES/EBU, coaxial and optical S/PDIF outputs • 20-segment LED meters w/peak hold & clip indicators • ALSO AVAILABLE: DA9624 24-bit D/A converter

DIGITAL MIXERS

Roland

VM Basic 72 Digital Mixing System

The all digital Roland V-Mixing System, when fully expanded, is capable of mixing up to 94 channels with 16 stereo (32 mono) onboard multi-effects including COSM Speaker Modeling. Utilizing a separate-component design, comprised of the VM-C7200 console and VM-7200 rackmount processor, allows the V-Mixing System to be configured to suit your needs. Navigation is made easy via a friendly user interface. FlexBus and EZ routing capabilities as well as a large informative LCD and ultra-fast short cut keys.



- 94 channels of digital automated mixing (fully expanded)
- Up to 48 channels of ADAT/Tascam T-DIF digital audio I/O with optional expansion boards and interfaces
- Separate console/processor design
- Quiet motorized faders, transport controls, total recall of all parameters including input gain, onboard mixer dynamic automation and scene memory
- 24 fader groups, dual-channel delays, 4-band parametric channel EQ + channel HPF
- FlexBus and "virtual patchbay" for unparalleled routing flexibility

- VS8F-2 Effects Expansion Board** -- Provides 2 stereo effects processors including COSM Speaker Modeling. Up to 3 additional boards can be user-installed into the VM-7200 processor, for 8 stereo or 16 mono effects per processor.

- VM-24E I/O Expansion Board** -- Offers 3 R-Bus I/Os on a single board. Each R-Bus I/O provides 8-in/8-out 24-bit digital I/O, totalling 24 I/O per expansion board.

- Up to 16 stereo (or 32 mono) multi-effects processors using optional VS8F-2 Effects Expansion Boards (2 stereo effects processors standard)
- COSM Speaker Modeling and Mic Simulation technology
- 5.1 Surround mixing capabilities
- EZ Routing allows mixer settings to be saved as templates
- Realtime Spectrum Analyzer check: room acoustics in conjunction with noise generator and d oscillator
- Digital cables between processor and mixer can be up to 100 meters long-ideal for live sound reinforcement.

- DIF-AT Interface Box for ADAT/Tascam** -- Converts signals between R-Bus (VM-24E expansion board required) and ADAT/Tascam T-DIF. Handles 8-in/8-out digital audio, 1/3 rackmount size.
- VM-24C Cascade Kit** -- Connects two VM-Series processor units. Using two VM-7200 processors cascaded and fully expanded with R-Bus I/O, 94 channels of audio processing are available.

EFFECTS & PROCESSING

Lexicon

MPX-500 24-Bit Dual Channel Effects Processor



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

- 240 presets with classic, true stereo reverb programs as well as Tremolo, Rotary, Chorus, Flange, Pitch, Detune, 5.5 second Delay and Echo
- Balanced analog and S/PDIF digital I/O

- 4 dedicated front panel knobs allow adjustment of effect parameters. Easy Learn mode allows MIDI patching of front panel controls
- Tempo-control/wid delays lock to Tap or MIDI clock

t.c. electronic

M-One Dual Effects Processor



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

- 20 incredible TC effects including, Reverb, Chorus, Tremolo, Pitch, Delay and Dynamics
- Analog-style user interface
- 100 Factory/100 User presets

- Dual-Engine design
- 24 bit A/D-D/A converters
- S/PDIF digital I/O, 44.1-48kHz
- Balanced 1.4" Jacks - Dual I/O
- 24 bit internal processing

D-Two Multitap Rhythm Delay



Based on the Classic TC2290 Delay, the D-Two is the first unit that allows rhythm patterns to be tapped in directly or quantized to a specific tempo and subdivision.

- Multitap Rhythm Delay
- Absolute Repeat Control
- Up to 10 seconds of Delay
- 50 Factory/100 User presets

- 24 bit A/D-D/A converters
- S/PDIF digital I/O, 44.1-48kHz
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- 24 bit internal processing



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MICROPHONES



C414 TLII "Vintage TL"

Combines the best of old and new: legendary C12 acoustics and the latest generation of C414 transformerless FET electronics. Although similar in design and shape to the C414BULS, the TLII features a capsule that is a faithful sonic recreation of the one used in the classic C12 tube mic combined with computer-aided manufacturing techniques that assure greater uniformity in response from microphone to microphone.

FEATURES-

- Cardioid, hypercardioid, omnidirectional and figure 8 polar patterns
- Warm, smooth microphone that is suitable for high-quality digital recording.
- Frequency response 10Hz to 20kHz



C4000B ELECTRET CONDENSER

This new mic from AKG is a multi polar pattern condenser microphone using a unique electret dual large diaphragm transducer. It is based on the AKG SolidTube design, except that the tube has been replaced by a transistorized impedance converter/preamp. The transformerless output stage offers the C4000B exceptional low frequency

FEATURES-

- Electret Dual Large Diaphragm Transducer (1st of its kind)
- Cardioid, hypercardioid & omnidirectional polar patterns
- High Sensitivity
- Extremely low self-noise
- Bass cut filter & Pad switches
- Requires 12, 24 or 48 V phantom power
- Includes H-100 shockmount and wind/pop screen
- Frequency response 20Hz to 20kHz



RØDE NT-2 Condenser Mic

The RØDE NT2 is a large diaphragm true condenser studio mic that features both cardioid and omnidirectional polar patterns. The NT-2 offers superb sonic detail with a vintage flavor for vocal and instrument miking. Like all RØDE mics the NT-2 is hand-assembled in Australia and is available at a breakthrough price.

FEATURES-

- Dual pressure gradient transducer
- 1" capsule with gold-sputtered membranes
- Low noise, transformerless circuitry
- Omni and cardioid polar patterns
- 135dB Max SPL
- High pass filter switch and -10dB pad switch
- Gold plated output connector and internal head pins
- Shockmount, Flight Case, and Pop Filter included
- 20Hz-20kHz frequency response



AT4047 Cardioid Condenser

The AT4047 is the latest 40 Series large diaphragm condenser mic from Audio Technica. It has the low self noise, wide dynamic range and high sound pressure level capacity demanded by recording studios and sound reinforcement professionals.

FEATURES-

- Side address cardioid condenser microphone for professional recording and critical applications in broadcast and live sound
- Low self noise, wide dynamic range and high SPL
- Switchable 80Hz Hi Pass Filter and 10dB pad
- Includes AT8449 SV shockmount



POWERED STUDIO MONITORS



VERGENCE A-20 Studio Reference Monitor System

Incorporating a pair of 2-way, acoustic suspension monitors and external, system-specific 250 watt per side control amplifier, the A-20 provides a precise, neutral studio reference monitoring system for project, commercial and post production studios. The A-20's control amplifier adapts to any production environment by offering control over monitoring depth (from near to far field), wall proximity and even input sensitivity while the speakers magnetic shielding allows seamless integration into today's computer based studios.



- Type Moduler, self-powered near/mid/far-field monitor.
- 48Hz - 20kHz frequency response @ 1M
- Peak Acoustic Output 117dB SPL (100ms pink noise at 1M).
- XLR outputs from power amp to speakers
- Matched impedance output cables included.

- 6dB LF Cutoff 40Hz
- 5 position wall proximity control
- 5 position listening proximity control between near, mid and far-field monitoring
- Power, Overload, SPL Output, Line VAC and Output device temperature display.

Amplifier

- Amplifier Power 250W (continuous rms/ch), 400W (100ms peak).
- XLR, TRS input connectors
- Headphone output
- 5-position input sensitivity switch with settings

Speakers

- 2-way acoustic suspension with a 6.5-inch treated paper woofer and a 1-inch aluminum dome tweeter
- Fully magnetically shielded with an 8-inch recommended working distance

MICROPHONE PREAMPS

AVALON DESIGN

VT-737SP Mono Class A, Vacuum Tube-Discrete Preamp-Opto-Compressor-Equalizer



The VT-737SP is a vacuum tube, Class A processor that combines a mic preamp, instrument DI, compressor and sweepable 4-band equalizer in a 2U rack space. Like all Avalon Design products the VT-737SP utilizes a minimum signal path design with 100% discrete, high-bias pure Class A audio amplifiers and the best active and passive components available. Used by renowned artists and studios world wide and the winner of the Electronic Musician 1999 Editors' Choice Award for Product Of The Year.

FEATURES-

- Combination of TUBE preamplifiers, opto-compressor, sweep equalizer, output level and VU metering in a 2U space
- Four dual triode vacuum tubes, high-voltage discrete Class A with a 10 Hz to 120kHz frequency response ± 0.5 dB
- The Preamp has three input selections- The first is a high performance XLR balanced mic input transformer with +48v phantom power, the second is a high impedance instrument DI with a 1/4" jack located on the front panel and the third is a discrete high-level Class A balanced line input.
- High gain switch boosts overall preamp gain and a passive- variable high pass filter, hardware relay bypass and phase reverse relay is available for all three inputs
- The Opto-Compressor uses a minimum signal path design and features twin Class A vacuum tube triodes for gain matching. A passive optical attenuator serves as a simple level controller. Variable threshold, compression ratio and attack and release offer dynamics control from soft compression to hard-knee limiting.
- The dual sweep mid-EQ can be side chained to the compressor allowing a broad range of spectral

control including de-essing. The EQ can be assigned pre and post compressor from the front panel to add even greater sonic possibilities.

- Two VT-737 SPs can be linked together via a rear panel link cable for stereo tracking
- The Equalizer utilizes 100% discrete, Class A-high-voltage transistors for optimum sonic performance.
- The low frequency passive shelving EQ is selectable between 15, 30 60 and 150Hz with a boost and cut of ± 24 dB
- The high frequency passive shelving EQ is selectable between 10, 15, 20 and 32 kHz with a boost and cut of ± 20 dB
- The low-mid frequency is variable between 35 to 450 Hz while the high-mid frequency is variable from 220Hz to 2.8 kHz. Both mid-band frequencies offer a boost and cut of ± 16 dB and a hi-Q/lo-Q switch.
- When the EQ to side chain is used, the low and high EQ is still available for tonal adjustment
- The Output level is continuously variable and utilizes another dual triode vacuum tube driving a 100% Class A, high-current balanced and DC coupled low noise output amplifier.
- Sealed silver relay bypass switches are used for the most direct signal path

PS-5 Bi-Amplified Project Studio Monitors



The PS-5s are small format, full-range, non-fatiguing project studio monitors that give you the same precise, accurate sound as the highly acclaimed 20/20 series studio monitors. The use of custom driver components, complimentary crossover and bi-amplified power design provides a wide dynamic range with excellent transient response and low intermodulation distortion.

FEATURES-

- 5-1/4-inch magnetically shielded mineral-filled polypropylene cone with 1-inch diameter high-temperature voice coil and damped rubber surround LF Driver
- Magnetically shielded 25mm diameter ferrofluid-cooled natural silk dome neodymium HF Driver
- 70 watt continuous LF and 30 watt continuous HF amplification per side
- XLR-balanced and 1/4-inch (balanced or unbalanced) inputs

- 52Hz-19kHz frequency response ± 3 dB
- 2.6kHz, active second order crossover
- Built-in RF interference, output current limiting, over temperature, turn-on transient, subsonic filter, internal fuse protection
- Combination Power On/Clip LED indicator
- 5/8" vinyl-laminated MDF cabinet



Hafler

TRM-6 Bi-Amplified Studio Monitors

Offering honest, consistent sound from top to bottom, the TRM-6 bi-amplified studio monitors are the ideal reference monitors for any recording environment whether tracking, mixing and mastering. Supported by Hafler's legendary amplifier technology providing a more accurate sound field, in width, height and depth.

FEATURES-

- 33 Watt HF & 50 Watt LF amplification
- 1-inch soft dome tweeter and 6.5-inch polypropylene woofer
- 55Hz - 21kHz Response
- Magnetically Shielded
- Electrically and Acoustically Matched

Also Available- TRM-8

- 1-inch soft dome tweeter and 8-inch polypropylene woofer
- 45Hz - 21kHz frequency response ± 2 dB
- 75 Watt HF, 150 Watt LF amplification



TRM-10s And TRM-12s Active Subwoofers

Combining Hafler's legendary amplifier technology with a proprietary woofer design, the TRM10s and TRM12s active subwoofers provide superb bass definition required in today's studio and surround sound environments.

TRM-10s

- 10-inch cellulose fibre cone down firing woofer.
- 200 watt low frequency amplifier
- 30Hz to 110Hz frequency response ± 2 dB
- 24dB/octave Linkwitz-Riley crossover variable (40Hz to 110Hz)

TRM-12s

- 12-inch cellulose fibre cone down firing woofer.
- 200 watt low frequency amplifier
- 25Hz to 110Hz frequency response ± 2 dB
- 24dB/octave Linkwitz-Riley crossover variable (40Hz to 110Hz)



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ACROSS THE BOARD

continued from page 154

stereo sound files, but I have been working on that one a little longer. In 1989 I got my first Mac laptop. It wasn't really a Mac, because Apple didn't make laptops. A company named Outbound built the first Mac laptops. They used ROMs from a Mac SE, but everything else was Outbound. For a while they were able to purchase ROMs from Apple, but they were cut off like every other company since who looked like they were doing the job better than Apple. Goodbye Outbound.

Digidesign's audio editor at the time was Sound Designer. Sound Designer would only work with Digidesign hardware. After two years of begging, I got a copy of Sound Designer II v2.02 that would work without any Digidesign hardware. I have been using it ever since. Digidesign no longer supports Sound Designer II, and has not incorporated all of its features into Pro Tools. The last version was 2.83. There is not a version of 2.83 that will work without Digidesign hardware. Sound Designer 2.83 will not work with the new Digidesign hardware. If you want to use

Sound Designer for editing stereo files, then you need to keep an Audiomedia III card in your computer.

If you need to get audio files in and out of your laptop without an expansion chassis, there is a way. A company named Digigram makes a PC Card audio interface called the VXpocket. The card has 24-bit A/D and D/A converters, a mic preamp, and S/PDIF digital in and out. It comes with ASIO drivers so it can be used with any ASIO-compatible software. This includes Cubase, Logic Audio, Vision, Digital Performer, and Spark.

For my little portable system I chose Spark XL from TC Works. I also have Vision DSP and Cubase Rocket 4.1 on my portable, but for CD compilation on the road, I prefer Spark XL and Toast Deluxe 4.1. Toast 4.1 comes bundled with most CD burners, but I purchased Toast Deluxe 4.1 because the Deluxe version allows Disk At Once burning of audio CDs. The bundled version does not.

The "XL" version of Spark adds TDM support for Digidesign hardware and native de-noise and de-clicking plug-ins. If you are familiar with Sound Designer, you will be well on your way with Spark. Spark's playlist can include regions from more than one sound file. Spark can also use VST plug-ins for processing audio

regions. The Spark playlist can be exported to Toast or Jam for CD burning.

THE FINAL PORTABLE SETUP

So how do I hook all of this stuff together? My audio source is a Sony TC-D8 DAT Walkman. The digital audio needs to get to the S/PDIF input of the VXpocket card. The portable DAT has a digital I/O port, but the coaxial S/PDIF interface is only an input to the DAT, not an output. The digital output connection is optical. I connect the DAT's optical output cable to a Midiman CO2 Coaxial-Optical converter, and the CO2 box to the coaxial S/PDIF input of the VXpocket card. Bingo. Digital audio into Spark, edit...edit...edit...and use Toast to burn a CD on a Que 8/4/32 FireWire CD burner. It almost all fits into two carry-ons.

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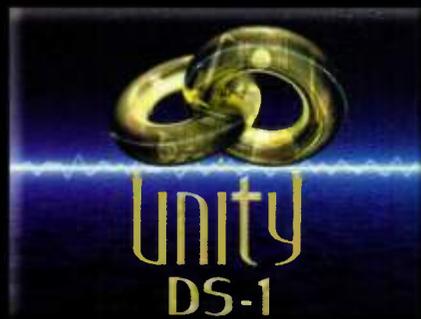
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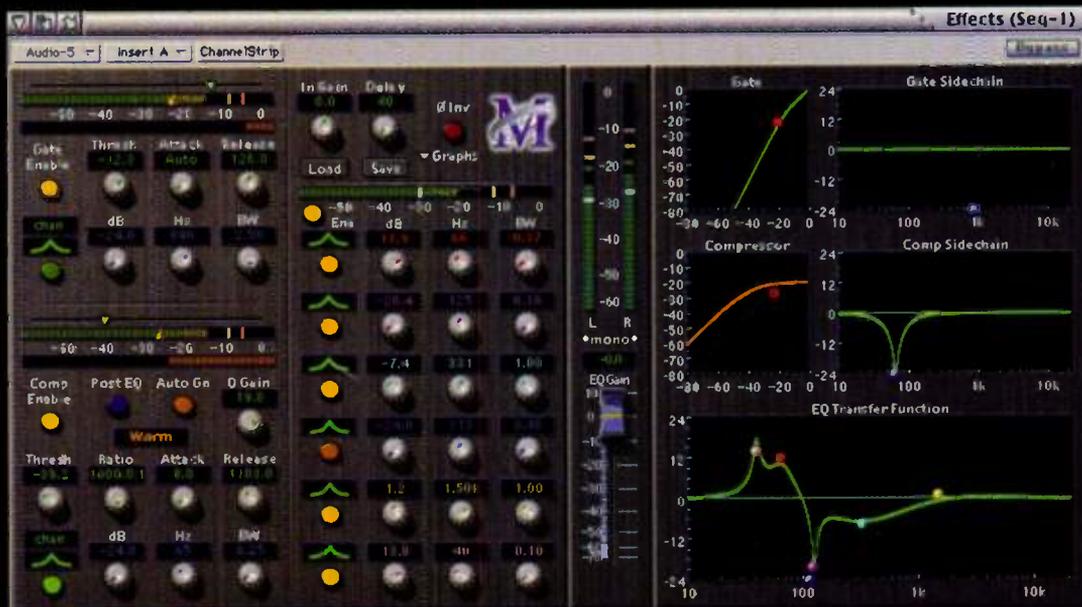
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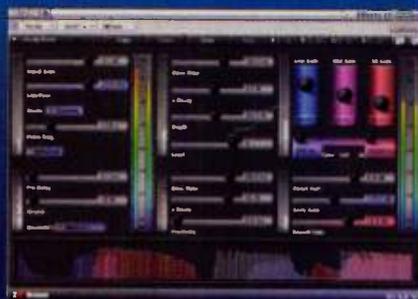
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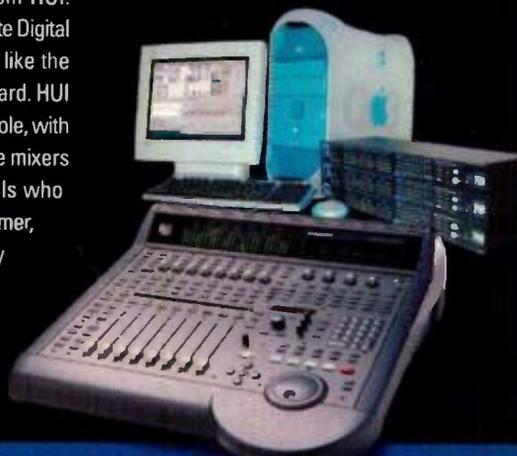
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HUI™ (Human User Interface)

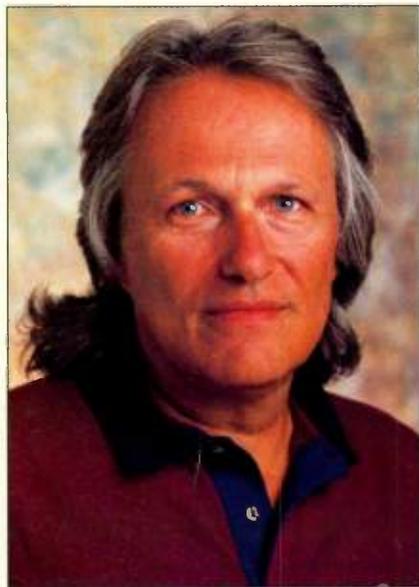


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Cut to the Chase



A history of portable
multitrack and stereo
audio editing

BY ROGER NICHOLS

For years I have been trying to come up with some way to edit audio while on the road. It seems that each time I come up with a solution, one of the manufacturers discontinues a key piece of the puzzle. After ten years of searching for the right pieces, it is almost possible.

There are two different types of tasks that many artists and engineers need to perform while away from their home system: [1] multitrack editing, such as Pro Tools sessions, and [2] two-track editing and sequencing necessary for CD production.

MULTITRACK

In the days of Pro Tools III, there was a program called Deck II. Deck allowed you to import and export audio files and regions to Pro Tools. I had a computer in my hotel room running Deck II. I would leave the studio with a hard disk full of

Pro Tools audio, import the files to Deck II, edit all night, export the results back to Pro Tools, and show up at the studio the next day ready for the next challenge. Deck II had some nice features of its own. Deck II supported Digidesign hardware and had the ability to record and edit twice as many tracks as Pro Tools. Soon afterward, Deck was removed from the Digidesign third-party developer list and interchange of audio files between Pro Tools and Deck became impossible. Deck II was taken over by Macromedia and offered as a platform for editing audio for QuickTime movies. Deck II is now distributed by BIAS (makers of Peak).

With the release of Pro Tools 4.1, Digidesign introduced Power Mix. Power Mix was a DAE plug-in that allowed the Power PC processor to do DSP work so that Pro Tools would work on a Mac G3 laptop without extra hardware. You could purchase an additional copy of the Pro Tools software, install it on your laptop, and directly open Pro Tools files—almost. Since Power Mix only had two channels for output, any session loaded from a TDM system was re-mapped and all of the track assignments were changed. If you then saved the session on the laptop and re-opened it on the TDM system, all of your original plug-ins and bus assignments were gone. To get around the problem, you could use Digidesign's Track Transfer utility. Track Transfer allowed you to import tracks from one session into another. You could import tracks to your laptop, edit them, and then import the edited versions back into your original session. Things were looking good.

Everything was working out unless you were working with 24-bit audio on your main system. You could not open 24-bit sessions on a Power Mix system. There was a loophole in the system that let you get your work done, though: You could make 16-bit copies of the audio files and place them on your laptop and give them the same names as the 24-bit versions. You could use Track Transfer to import the edited track information into the TDM version of Pro Tools. Pro Tools would open the 24-bit version of the audio file and apply the region information from the 16-bit version.

A year ago, Digidesign released Pro Tools 5.0. Digidesign dropped Power Mix. You could no longer use Pro Tools without Pro Tools hardware. If you had Pro Tools on your laptop, you were forever stuck with version 4.3.2. So far moving sessions back and forth between version 4.3 and version 5 leaves a lot to be desired. I have yet to be able to successfully edit a 5.0 session on my 4.3.2 laptop and get it back correctly.

The best solution, although not completely portable, is to purchase a Magma expansion chassis for the Mac G3 laptop. Magma makes a few different versions of their patented PCI expansion chassis. The smallest expansion chassis is a two-slot PCI box with a PCM card connection to a G3-400 or G3-500 ("Pismo" version). With two slots, you can install a Digidesign card and a SCSI interface adapter. There is room in the box for a pair of one-inch high hard drives.

TWO-TRACK EDITING

The solution is a little easier for editing

After ten years of
trying to solve the
portable-editing dilemma,
the Magma chassis
seems like the only
foolproof method for
doing all of my stereo and
multitrack editing.

continued on page 149

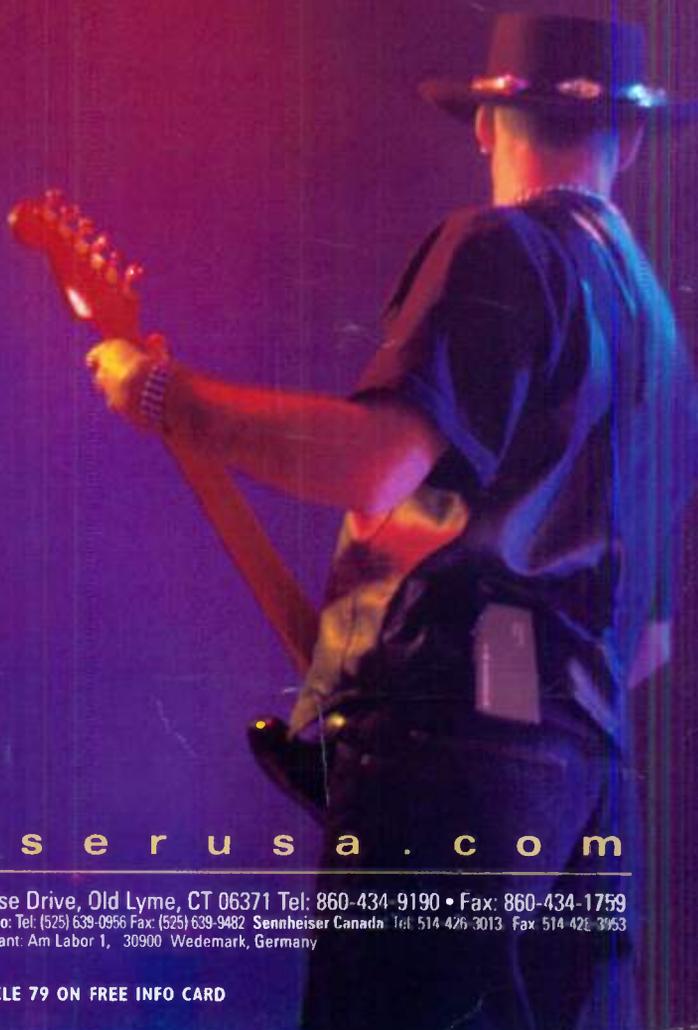


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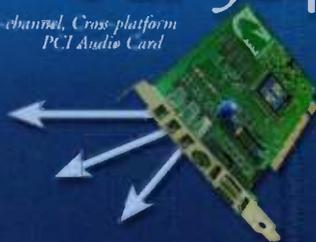
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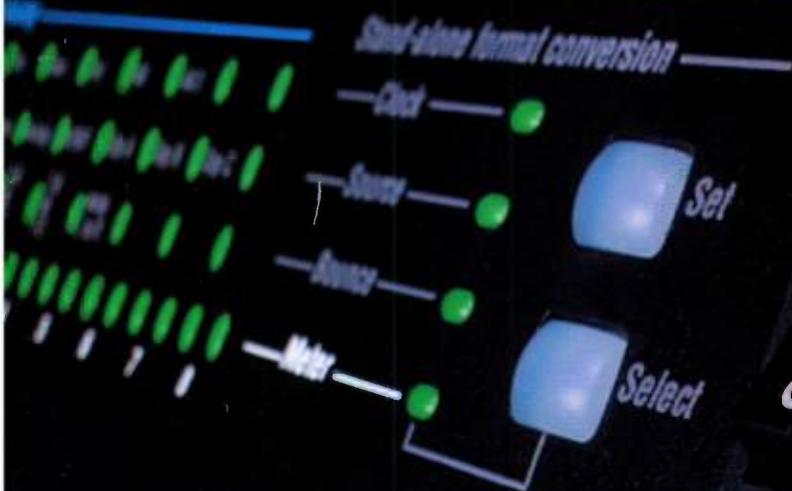


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